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LESSONS OF WAR

AS TAUGHT

BY THE GREAT MASTERS

AND OTHERS;

SELECTED AND ARRANGED

FROM

THE VARIOUS OPERATIONS OF WAR.

BY

FRANCE JAMES SOADY,
LIEUT.-COLONEL, R.A.

VÆ VICTIS!

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PREFACE.

MILITARY literature embraces so extensive a range of subjects, and in many cases, is so burdened by technical and uninteresting detail, as to require even of the professional reader, much time, patience, and thought, ere its real gist is seen, and a proper conception of facts arrived at.

In the valuable and voluminous works of Jomini, the Archduke Charles, Napier, Hamley, Chesney, &c., and other noted military writers, the greater operations of war are illustrated and diffused; while a knowledge of the minor operations may be also gleaned from numerous professional works. Such works, however, are in many cases unattainable, through the impracticability of having always at hand a library of reference.

It has often occurred to me, that no work exists of convenient size and condensed into reasonable limits, amply treating on the various subjects embraced by both these branches of the Art of War. To make selections from some of the most important military works, and arrange them in a lucid manner, has been the object aimed at in this publication.

While consulting authorities and writers, I have adhered as a rule to the actual text, and have endeavoured to show briefly the leading principles, by which the campaigns of Great Commanders have been governed. Pretending to no merits of composition or originality, I have merely attempted by the aid of such an analysis to place in an intelligible form, the materials obtained. These it is hoped may be found adapted and sufficiently comprehensive, for the general requirements of each Arm. To the general reader, seeking some knowledge of the Science and Art of War, a summary brought together within a convenient compass, may be acceptable.

Where authorities have differed, those views have been preferred, which appeared to be most in accordance with the best received ideas of the present time; although on some important points, the separate opinions held have been given.

The indulgence of the reader is solicited to imperfections and short comings, which may be descried; the labour of the task and the continued attention needed in its accomplishment, having been considerable. A list of the various Works and Authors consulted, is appended: should some have been at times, too deeply drawn upon, their acknowledged merits and attractions must be pleaded in extenuation.

F. J. S.

CONTENTS.

PART I.

INTRODUCTORY.

CHAPTER I.

SECTION I.

PAR. PAGE

WAR AND ITS PROGRESS 1-8

1. Six distinct parts of the Art of War 1
    Knowledge of all the parts, for a General or Staff Officer.
2. Frequent applications and an observant mind necessary . . 1
3. Organizing an army, without an establishment or military system . . 2
4. Wars of opinion, national and civil 2
    Their fearful nature.
    In national wars, the country should be occupied.
5. Study of the Peninsula war 2
6. General principles, for conduct of armies 2
7. The greatest mind incapable of embracing all combinations . . 3
    The greatest generals commit blunders.
    Napoleon's foresight.
8. Turenne, as to the liability of generals to mistakes 3
9. Progress of the art of War 3
    Disorders amongst troops, in the 18th Century.
    Advancement of the art, under Frederick the Great.
10. The Prussian system copied 4
11. Progress of tactics, in the British army 4
    Regular system adopted throughout.
    Improvements in artillery, by Sir William Congreve.
12. Field artillery, in the time of Charles I. 5
13. First example of combined operations, by the Archduke Charles . . 5
14. True school of instruction for generals 5
15. Preparation for war 6
16. Changes in warfare, foreseen by Prussia 6
17. Education of armies 6
18. Utilizing camps of instruction 7

PAR. PAGE
19. Cultivation of a military spirit in nations - - - - - - 8
The grandeur and fall of the Roman Empire.
The wealth of the tax-gatherer and gambler, standing high in public estimation.

SECTION II.

THE COMMAND OF ARMIES - - - - - - - 8–19
1. Marshal Saint Cyr's conversation with Napoleon - - - - - 8
Napoleon's statement, as to learning the art of war.
Napoleon's first campaign, considered as his *chef d'œuvre.*
2. Turenne's opinion as to learning the art of war - - - - - 9
Napoleon's officers, not having time to acquire the knowledge.
Inspiration in war.
3. Mastering strategical combinations, and tactical handling of troops - 10
4. Dissimilarity in qualifications, as a strategist and tactician - - 10
5. Experience and study of strategy - - - - - - - 11
6. Formation of a great commander - - - - - - - 11
7. A campaign, the exemplification of some general theory - - - 11
Study the first condition of practical success.
8. First qualification for a general-in-chief - - - - - - 12
9. The *morale* of war, for the general - - - - - - 13
Discipline and organization.
10. The command-in-chief, and subordinate commands - - - - 13
11. The greatest generals, possessed the highest intellect - - - - 13
12. Essential qualities for a general - - - - - - - 13
Long experience, or as an officer of the staff.
13. Character needed for a great general - - - - - - 15
14. The aid of experience requisite for war - - - - - - 15
15. Reputation of the Archduke Charles, formed by study - - - 15
Study of strategy, might be confined to recent wars.
16. Knowledge of the features of the country, and of the field of operations - 15
17. Wellington's practice of daily study - - - - - - 16
18. His steady observance of rules - - - - - - - 16
19. Napoleon's exhortation for acquiring the secret of the art of war - 16
20. A General experienced, but unversed in strategy - - - - - 17
21. Undivided command of an army - - - - - - - 17
22. The command in one individual, the first security for success - - 17
23. Jomini as to prejudices respecting the principles of war - - 18
24. Sphere of strategy, will be more enlarged and bolder - - - 18
25. Responsibility of a General-in-chief, when the operations are distant - 18
26. Vital questions of war, to States - - - - - - - 19
Proper understanding between a Minister and General-in-chief.

SECTION III.

PAR. PAGE
COUNCILS OF WAR - 19-22
1. Councils of war, how they terminate 19
2. Opinion of Prince Eugène and Marshal Villars, as to them . . 20
Consulting generals of experience.
3. Certain arrangements depend on the general - 20
4. Councils when concurring with the Commander - 20
Organizing the staff, in default of a general.
Blucher aided by an efficient staff.
5. A good strategist, as chief of the staff 21
6. Qualities which a general should possess 21
Council seldom summoned by Napoleon.
7. Some personal qualities of a great general 21
Marlborough's secrecy.
8. Importance of secrecy of plans 22
Secrecy in Frederick's time.

PART II.

STRATEGY.

CHAPTER I.

SECTION I.

PAR. PAGE
AIM AND PRINCIPLES - - - - - - - - - 23–26
1. The art of strategy - - - - - - - - - - 23
2. Its double purpose - - - - - - - - - 23
3. Distinction between strategy and tactics - - - - - - 23
4. An example of the science, by Turenne - - - - - - 23
5. What strategy teaches - - - - - - - - - 24
6. The genius of Napoleon for strategy - - - - - - 24
7. Certain principles should govern all wars - - - - - 24
8. Knowledge of political matters and Military Geography - - 24
9. Strategy past and present - - - - - - - - 24
Theatre should be limited.
10. What is requisite in the plan of a campaign - - - - - 25
11. Strategy and tactics, when not in concord - - - - - - 25
12. Strategical points - - - - - - - - - - 25

SECTION II. ✓

BASE OF OPERATIONS - - - - - - - - 26–33
1. Connection of an army with its base - - - - - - - 26
2. Base, usually for supply - - - - - - - - - 26
3. Its relation to depôts of supplies - - - - - - - 27
4. A frontier when suitable as a base, or a line of defence - - - 27
Direction of bases.
On a broad and rapid river.
An extended base.
5. Fortified points and an extended base - - - - - - 28
6. Its proportion to its distance from the objective - - - - 28
7. Lateral extent of base - - - - - - - - - - 28
Advantage of the extent of Federal base.
Maritime powers based on harbours.
Depôts behind the flanks.

PAR. PAGE
8. Advantageous direction of bases 29
Influence of the configuration of the theatre of war.
French armies in Westphalia, from 1757 to 1762.
Napoleon on the Saale, in 1806.
Art of selecting lines of operations.
Bohemia as a base in 1813.
Perpendicular base of the Russians, in 1813.
Napoleon in 1806, with the double base of the Rhine.
Change of strategic front, in default of a double base.
Bases on the sea coast.
Wellington's base at Lisbon.
Principles in establishing a base, by a continental power and by an insular and naval power.
Russian and Turkish war of 1828 and 1829.
10. Maritime power selecting a base on a coast frontier 33

Section III.

DECISIVE POINTS 34–36
1. Decisive points of the theatre of war 34
2. When strategical points are fortified, in preference to the capital . 34
3. Accidental points of manœuvre 34
Mack at Ulm in 1805, and Kray in 1800.
Operating upon an enemy's flank, to cut him off.
When the enemy's forces are divided.
4. Possessing the points of junction of roads 35
5. Napoleon's movement towards the junction point of the cross-road, leading to Brussels 35

Section IV.

OBJECTIVE POINTS 36–38
1. Aim of a strategical combination 36
Selection of the objective.
2. Determination of the objective 36
3. Possession of Richmond, when desired by the Federal government . . 37
Objects of France, if at war with Austria or Spain.
4. First object of the British expedition to Egypt 37

Section V. ✓

LINES OF OPERATIONS 38-51
1 Line to be preserved 38
2 Directing the line of operation 38
Influence of a river over the direction.

PAR. PAGE
3. When the line of the river is short - - - - - - - 38
4. Depôts and magazines, for supplies - - - - - - 38
  Limits of distance from base.
5. Covering depôts, by lines of operations - - - - - - 39
6. Principal and secondary depôts - - - - - - - - 39
  Intervening distances.
  Arrangements for troops and communications.
7. Wellington's want of magazines, experienced after Talavera - - 40
8. Position and security of depôts - - - - - - - - 40
9. Strategical position of an army, undertaking the conquest of a country - 41
  Direction of the lines of operation.
  Post for depôts of supplies.
10. Lines of operation open to the Italian general, in 1866 - - - 41
11. Choice of the line, the fundamental idea - - - - - - 42
  Direction of the manœuvre line.
  Safe line of retreat, always to be ensured.
12. Napoleon's first resolve to fall back on Smolensko from Moscow - - 43
  Endeavour to turn the left of the Russians.
13. Junction of two armies, with separate lines of operation - - 44
14. Isolation of the two Prussian armies, in 1866 - - - - - 45
  Aid of the field telegraph.
15. Divergent bases, when armies can combine - - - - - 45
16. Hanover and Hesse-Cassel invaded, in 1866 - - - - - - 46
  Superior numbers on the decisive point.
17. Independent armies on the same frontier - - - - - 46
  Single and double lines of operation.
  Interior and exterior lines.
  Double line when applicable.
18. Divergent and convergent operations - - - - - - - 47
  Concentric movements.
  Concentric columns marching on the Mincio and on Brussels.
19. Interior and exterior lines - - - - - - - - - 48
20. Armies of France and Austria, in 1800, upon interior and exterior lines - 48
21. Multiple lines - - - - - - - - - - - 49
22. Parallel lines - - - - - - - - - - - - 49
23. Changing the line of operation - - - - - - - - 49
24. Changing the line, when necessary - - - - - - - - 50
  Proposed change of line by Napoleon, if defeated at Austerlitz.
25. When useful and salutary to change - - - - - - 50
  Soult's line on Toulouse, after quitting the Adour.
26. Direction taken by Austrians, in 1794, when retreating from Fleurus - 50
  Direction taken by the Prussians, in 1815, after Ligny.

✓

SECTION VI.

LINES OF COMMUNICATION - - - - - - - 51-60
1. Principles of strategy, up to 1815 - - - - - - - 51
2. Lines far removed, without communication - - - - - 52

PAR. PAGE
3. Lateral communications 52
   Austrians at Rivoli and at Lake Garda.
4. Security of lines of communication 53
5. Long lines of communication 53
6. Corps without communication 53
7. Cause of the loss of the battle of Hohenlinden 53
8. Base of operation and line of communication in Scinde, in 1842 54
9. Direction for lines of communication 54
10. Rendering an enemy's communications insecure 54
11. Readiness to concentrate 54
   Methods of penetrating an enemy's front, or menacing his communications.
12. Napoleon's endeavour to intercept Sir John Moore's retreat from Spain 55
13. Napoleon's flank menaced, by his march upon Madrid 55
14. Direction of Sir John Moore's march 56
   Reason for selecting Corunna, as the new base.
15. Prussian occupation of Saxony, to preserve communications 56
16. Campaign in Georgia 57
   Operating without communications.
17. Design of the Campaign 57
18. Operating with superior numbers 57
   Arrangements for daily supplies.
   Commencement of flank operations.
19. Task for the inferior army, of the Confederates 58
   Turning the Confederate positions.
20. Lessons taught by Sherman's campaign 58
21. Course to pursue, when aiming at an adversary's rear 58
   Step to be taken, by the intercepted army.
22. Rivers and hill ranges, when parallel to an advancing army's path 59
23. Maxims of Napoleon, as to flanks and concentrating 59
   Position occupied by the French army of Portugal, in 1811.
   Marmont rebuked by Napoleon.

CHAPTER II.

Section I.

THEATRE OF WAR 61-64
1. Description of a theatre of war 61
   Theatre of operations.
   Each theatre to be complete.
2. Study of the theatre of war 62
3. Limits of the theatre of operations 62
4. Theatre of German war, 1866 62
5. Theatre of war, in Italy, 1866 64
   The Quadrilateral.

Section II.

PAR. PAGE
ZONE OF OPERATIONS - - - - - - - - - 64–68
1. Number of Zones, in the theatre of operations - - - - - 64
Subdivisions of each zone, &c.
2. Selecting a zone - - - - - - - - - - - 65
Choosing an objective of operations.
3. Taking the lead in operations - - - - - - - - - 65
Ascertaining the nature of the country and enemy's movements.
4. Fitness of the theatre, for the action of each of the three arms - - 66
5. Selection of the Zone of operations - - - - - - - 66
Direction of movement.
Theatre between the Rhine and North Sea.

Section III.

STRATEGICAL POSITIONS - - - - - - - - 69–71
1. Positions, when strategic - - - - - - - - - 69
Communications with lines of operations.
2. Adaptability for concentrating - - - - - - - - 69
Tactical positions to be selected.
Extent of front, in camp or quarters.
Tactical point for rallying.
3. Strategic front and front of operations - - - - - - 70
4. Their direction - - - - - - - - - - - 70
Change of strategic front.
Napoleon's change against the Russians.
Pivots of operations, at Warsaw and Thorn.
Napoleon's change of strategic front, in 1806.
Moreau's change.
Double strategic front.

CHAPTER III.

Section I.

STRATEGICAL CONSIDERATIONS AND RULES - - 72–82
1. Adhering to the offensive, when once assumed - - - - - 72
2. First care of the commander, upon taking the field - - - - 72
Determination of strategical points, lines, &c.
3. Connection between points and lines - - - - - - - 73
4. Obstacles on the frontiers of states - - - - - - 73

PAR. PAGE
5. Rivers as lines of operations - - - - - - - - - 73
Mountains as barriers.
Partisan and regular warfare combined.
6. Striking at a flank - - - - - - - - - - 73
Engaging the enemy's forces separately.
7. Intercepting an enemy, when the two armies are near - - - - 74
When the movement is commenced at a distance.
8. When threatened to be surrounded - - - - - - 75
9. Distant positions occupied by the British in Afghanistan - - - 75
10. Errors of the British general, at Caubul - - - - - - 75
11. Acting contrary to the desire of an enemy - - - - - - 75
12. Wellington's skill in divining an enemy's designs - - - - 75
13. Causes, which determined Napoleon to receive battle on the ground at Austerlitz - - - - - - - - - 76
14. Opinions in the allied armies, as to the plan to be adopted - - 77
15. Collecting the whole force previous to a battle - - - - - 77
Napoleon's concentration, previous to Austerlitz.
16. Not detaching, on the eve of a battle - - - - - - 78
17. Dividing the forces, and operating in different directions - - - 78
18. Wurmser's detached column in 1796, menaced - - - - - 78
Alvinzi's detached body, routed.
Napoleon's army in Italy, in 1800, divided.
Attack made by the Austrians, at Marengo.
19. Wellington's detached troops on the day of Waterloo - - - - 79
20. Assailing a weak point with superior numbers - - - - - 80
Moment for assuming the initiative.
21. General Jackson operating against divided Federal forces - - - 81
22. Austria against Prussia and Italy combined, in 1866 - - - 82
Retarding the advance of one enemy, and operating against the other.

Section II.

OFFENSIVE AND DEFENSIVE WARFARE - - - - 82-110
1. Movements based upon calculation - - - - - - - - 82
Superior genius for offensive warfare.
2. Strategical operations, on assuming the offensive - - - - 83
Tactical movements of the attacking party.
3. The offensive and defensive considered - - - - - - - 84
4. Power of concentration rests with the assailant - - - - - 84
Napoleon's superiority on first crossing into Belgium.
Lines leading to Richmond, open to the Federals.
5. Plan for concentration of the allied armies, previous to Waterloo - - 85
Importance of the Fleurus triangle.
6. Disposal of the Russian forces, in 1812, along the frontier - - 86
7. Extracts from Notes dictated by Napoleon, in 1808, on the affairs of Spain 86
8. Combinations and dispositions of Napoleon, when invading Spain - - 89

PAR. PAGE
9. Napoleon's dispositions for further operations, after the fall of Madrid - 90
10. Extent of country occupied by French, in Spain - - - - - 90
Central position, held by Wellington.
11. Wellington's opinion, respecting offensive operations in France, in 1815 91
Disposition of the troops.
12. Proposed operations of the Prussian armies, when invading Austria, in 1866 93
13. Movement of Russians on Constantinople, in 1829 - - - - - 94
14. Commencement of the Russian advance - - - - - - 95
Extent of the line.
15. Political elements, in the selection of a line, for invasion - - - - 96
Line of the Rhine, held by Austrian armies during the French Revolution.
Line taken up by the Prussian army, during the Jena Campaign.
First design of the Allies, in the late war with Russia.
16. Support of strategic fronts and lines of defence - - - - - 97
Pivots of operation.
Pivots of manœuvre.
Length of the line of defence.
17. Operations entirely defensive - - - - - - - - - 97
18. Defensive warfare, passive or active - - - - - - - 97
The defensive-offensive.
19. Indirect defence - - - - - - - - - - 98
Enduring the first shock of the assailants.
20. Denmark, in 1804, on the defensive - - - - - - 99
21. Frederick in the Seven Years' War - - - - - - - 99
Wellington in Portugal, Spain, and Belgium.
22. The defensive not adopted by the Spaniards during the French invasion 99
Progress of the French onwards to Lisbon.
23. Wellington's counsel, unheeded by the Spaniards - - - - - 100
24. Wellington's warfare in Spain, Portugal, and South of France - - 100
25. Defensive and offensive warfare of Wellington in the Peninsula - - 101
26. Frontier of Portugal, as a line of defence - - - - - 101
27. Defence of Portugal, by the lines of Torres Vedras - - - - - 102
28. Openness of the frontiers of Portugal, to an invading army - - 102
29. Defence of the Spanish frontier - - - - - - - 103
Passes through the Pyrennees.
30. The Balkan range: number of passes - - - - - - 103
31. Defence of the country, against an invading army - - - - - 103
32. Defensive operations of the Austrian army, in 1866 - - - - 104
Plan of operations.
33. Business of the advanced detachments, of the defenders - - - - 105
Assembly of the main body.
34. Concentration of the Austrian army - - - - - - 105
Benedek's retreat to Königgrätz.
35. Commencement of Russian defensive movements in 1812 - - - - 106
Retreat and subsequent concentration.
Intrenched camp near Drissa.
Movements upon Smolensko.
French progress, arrested at Mojaisk.
Junction of the corps of Bagration.
French attack upon Smolensko.
Position at Borodino, examined.

PAR. PAGE
36. Retreat continued towards Moscow - - - - - - - - 108
Russian Council of war.
Flank position taken up by the Russians.
37. Places of refuge intermediate between the frontier and the capital - 109
38. Retreat of the Austrians on Olmütz, after Königgrätz - - - - 110
39. Movement of the Austrian army for the protection of the capital - 110

CHAPTER IV.

SECTION I.

FORTRESSES - - - - - - - - - - 111-126
1. Absence of progress, in fortification - - - - - - - 111
2. Fortresses of the past and present - - - - - 111
3. Purposes for which useful - - - - - - - - 111
4. Defence of frontiers - - - - - - - - 111
5. Number and location - - - - - - - - - 111
6. Influence of the French and Belgian cordons in 1815 - - - 112
7. Positions for fortresses - - - - - - - - 112
Unsuitability of mountains.
When placed on rivers.
8. When on mountains and rocks - - - - - - - - 113
9. Space between the fortress and river - - - - - - - 113
10. When near the flanks of operations - - - - - - 113
Besieging and investing.
Opposite courses adopted by the Allies, in 1793 and in 1815.
11. Alexandria isolated by the British - - - - - - - 114
12. Wellington's opinion as to the difficulty of defending the Netherlands - 115
13. The positions of the Austrians and French, in 1796, commented upon by the Archduke Charles - - - - - - - 116
14. General Rogniat's application of more modern principles of defence - 116
15. Fortification of capitals - - - - - - - - - 116
Limit of the influence of fortresses.
16. Fortresses on a frontier with few issues - - - - - - 117
Fortifications of Paris.
Delaying the assailant, by frontier fortresses.
17. Proposal of the Archduke Charles, for the defence of the Danube valley - 118
Ulm and Ingolstadt, as strategical points.
18. Relations of fortresses to strategy - - - - - - - 118
Jomini's views for locating fortified places.
19. Fortresses improperly located - - - - - - - - 119
20. Inaccessibility of the fortresses of Konigstein - - - - - 119
21. Former opinion, as to the number of fortresses - - - - - 120
Diminution in value.
Importance of holding the capital.
Austrian fortresses, in 1866, blocking the lines of railroads.
22. Protection for an open frontier - - - - - - - 123

PAR. PAGE
23. Conditions for a good system of defence - - - - - - - 123
24. System of defence, for Great Britain - - - - - - - 124
25. Depôt in rear of the line of defence - - - - - - - - 124
Project for fortifying London, in 1803.
26. Proposed defensive means for England - - - - - - 125

Section II.

SIEGES - - - - - - - - - - - 126–133
1. Decrease in the importance of fortresses - - - - - - - 126
Sieges diminished
2. Objects for undertaking a siege - - - - - - - - 127
3. Consequences of Burgos not falling early - - - - - - - 127
4. Causes for the third attempt to reduce Badajos - - - - - 128
5. Objects in the siege of Sebastopol - - - - - - - - 128
6. Earthworks of the defenders - - - - - - - - - 129
7. Advantages possessed by the besieged - - - - - - - 129
8. Obstacles against which the besiegers had to contend - - - - 130
Reason of the siege being protracted.
9. Ensuring the success of a siege - - - - - - - - - 131
Lines of contravallation and circumvallation.
Position of the besieging force.
10. Position for a besieging force, inferior in numbers - - - - 132
11. Napoleon when besieging Mantua - - - - - - - - 132
12. Why Wellington did not besiege Ciudad Rodrigo, in 1811 - - - 132
13. Causes for the second siege of Badajos - - - - - - - 133

Section III.

INTRENCHED CAMPS - - - - - - - - 134–143
1. Modern uses of intrenched camps - - - - - - - - 134
2. Their use, as shewn by Vauban - - - - - - - - 134
3. Nature of works, requiring to be constructed - - - - - 134
Objects for which needed.
4. Rules for the selection of ground - - - - - - - - 134
5. Awaiting an enemy within lines - - - - - - - - 135
6. Position for an intrenched camp - - - - - - - - 135
7. Attack of intrenchments - - - - - - - - - - 136
8. Frederick's intrenched camp at Buntzelwitz - - - - - - 136
The camps of Kehl and Dusseldorf.
The lines of Torres Vedras.

PAR. PAGE
9. Perilous position of Frederick at Buntzelwitz - - - - - 136
10. Intrenched camps, which can be surrounded - - - - - 137
Advantages of the Torres Vedras lines.
11. Dubious advantages of a system of lines - - - - - - - 137
Lines of Soult, at Nivelle.
Time and labour necessary, for the works at Nivelle and Torres Vedras.
Part taken by the assailants and defenders.
12. Their distance from the base of operations - - - - - - - 139
Suitability for covering places.
13. Occupation of camps by Napoleon - - - - - - - 139
14. Position and capabilities - - - - - - - - - - 140
Description of troops, to occupy them.
15. Heights and positions in England, suitable for field works - - 140
16. Lines at York Town - - - - - - - - - - - 140
Natural and artificial defences.
The intrenchments besieged.
Their abandonment by the Confederates.
The works at Williamsburg, turned by the Federals.

CHAPTER V.

SECTION I.

COAST DEFENCE - - - - - - - - - 144-170
1. Objects of coast defence - - - - - - - - - 144
Points to be held.
Error of the Confederates.
2. Elements of coast defence - - - - - - - - - 144
3. Railways for the defence - - - - - - - - - - 145
4. Proposed plan of operations, during the threatened invasion by Napoleon 145
5. Proposed arrangements, to meet an enemy after landing - - 146
6. Guarding assailable points, by forts - - - - - - - 146
7. Fortifications for defensive warfare - - - - - - - 147
Comparative cost of ships and forts.
8. Naval arsenals fortified and unfortified - - - - - - 147
Protection of small harbours.
9. Guns in floating batteries and on land - - - - - - - 148
Floating defences, where required.
10. Land batteries in combination with floating defences - - - - 149
11. Positions for coast batteries - - - - - - - - - 150
Employment of field artillery.
12. Command of batteries, over an object - - - - - - - 150
13. Batteries when more subject to the fire of ships - - - - - 151
14. Fire of elevated batteries - - - - - - - - - - 151
Height above the level of the water.
15. Guns on steep ground - - - - - - - - - - 152
16. Position and elevation of batteries on the Alabama river - - - 152

PAR. PAGE
17. Cliff batteries, at Sebastopol 152
The Wasp and the Telegraph battery.
Fort Constantine water battery.
18. Injuries inflicted by the cliff batteries 153
19. Ascendancy established by the cliff batteries 153
20. Firing at vessels in motion 154
Time exposed to fire.
21. Accuracy and rapidity of fire against moving objects 154
22. Admiral Farragut's fleet, passing the batteries at Vicksburg 156
23. Position of the enemy's guns, previously unknown 156
24. Passing the batteries, at Fort Morgan 156
25. Natural and artificial obstructions, in coast defence 157
26. Ships passing through clear channels 157
27. Powers of forts and ships, to inflict damage 157
Breaches effected, in forts.
28. Naval successes, against inexperienced opponents 158
29. Attack of iron-clads, on Fort Sumter 158
30. Attack on forts St. Philip and Jackson 158
31. Attack by the Italian fleet, on San Giorgio, Comisa and Manego 159
Second attack on Lissa.
32. Results of the allied naval attack on Sebastopol 161
33. Number of guns employed in the naval attack 162
34. Destruction of Bomarsund, by military and naval forces 162
35. Lighter description of ordnance, for land attacks 162
36. Actual possession of a fortress, previous to destruction 163
37. Concert of naval and land forces 163
38. Attacks on land batteries, when combined 163
Securing a lodgment, on the coast.
39. Attack of outposts, and isolated points 164
Probable results of ships attacking.
40. Uncertainty of vertical fire 164
41. Bombardments of San Juan d'Ulloa and Vera Cruz 164
42. Batteries *en barbette* 165
43. When opposed to iron-clads 165
44. Turrets 166
45. Moncrieff's carriage 166
46. Moncrieff's gun-pits 167
47. Casemated sea-batteries 167
48. Thickness of outer walls, at Fort Sumter 168
Iron shields, at the embrasures.
Isolated works.
Iron-plated fronts.
49. Earth and sand batteries 169
System of defence, at Vicksburg.
50. Earth and sand material 170
Guns *en barbette* silenced.
Scattering guns and concentrating their fire.

SECTION II.

PAR. PAGE
CHANNEL OBSTRUCTIONS - 171-181
1. Importance of channel obstructions - 171
Space for manœuvring a flotilla.
Admiral Farragut's plan of attack.
Success or failure of naval attacks.
2. Obstructions, not removable under fire - 172
3. Their importance to the Confederates - 172
Entry of blockade runners.
4. Rope obstructions, in the attack on Fort Sumter - 172
5. Difficulties opposed to obstructing channels - 173
System of obstructions.
Position for obstructions.
6. Sunken vessels - 173
Russian Black Sea fleet.
Confederate vessels.
Objections to sinking vessels.
Pontoons or flats, as substitutes.
7. Rocks, piles, chains and booms - 174
8. Opening a passage, by means of a petard - 175
9. Resilient structures, as effective obstructions - 175
10. Rope obstructions - 175
Liability of ships being caught.
11. Torpedoes - 176
Passive and active obstructions.
Application of explosive machines, by the Russians.
12. Use of torpedoes by the Austrians - 177
13. Successful results, obtained by the Americans - 177
Mechanical and electric torpedoes.
Arrangement and submersion.
14. First application by ships, against each other - 179
15. Torpedoes, as auxiliary agencies and offensive weapons - 179
16. Not to be regarded, as substitutes for forts and batteries - 180
Protection to undefended places.

SECTION III.

LANDING OF ARMIES - 181-194
1. Influence of the formation of coasts, on landing - 181
2. Requisite boats for the landing - 182
Circumstances determining points for debarkation.
3. Advantages of steam, conferred on the defenders - 183
4. Advantages of rapid flank movements, to the defenders - 184
5. Departure of the English troops, for Holland, under Sir Ralph Abercromby 184
Landing of the troops.

PAR. PAGE
6. Landing of Wellington's army, at the mouth of the Mondego river - 186
7. Usual plan adopted for landing, in the war with France - - - 186
8. First modern instance of landing in the face of an enemy - - 187
Abercromby's after-plan for landing an army.
9. Departure of the British army for Egypt - - - - - 189
Attempt to reconnoitre the coast.
10. Preparations for the landing - - - - - - 189
11. The landing - - - - - - - - - 189
12. Vessels covering the landing - - - - - - 191
13. English and French expedition to China - - - - - 191
14. Expedition of the allied armies to the Crimea - - - - 191
Respective numbers of the forces and vessels employed.
15. Landing places selected - - - - - - - 192
Plan of the landing.
Numbers and descriptions disembarked, on first day.
16. Results following the plans followed - - - - - 193

PART III.

MODERN INNOVATIONS.

CHAPTER I.

SECTION I.

PAR. PAGE

INFLUENCE OF RAILROADS, CHAUSSEES, CANALS, STEAM-VESSELS, ON WARFARE - - - - - - 195-212

1. Main roads, for armies moving in America - - - - - - 195
   Railways depended upon in the civil war.
2. Movement on Richmond, viâ Fort Monroe - - - - - 195
3. Necessity for operating on good roads - - - - - - 196
   Rates of movement over good and bad roads, in the Waterloo campaign.
   Bad roads during the American Civil War.
4. Difficulties of transport into Spain and Portugal - - - - 197
   Situation of the French armies, in Spain.
   Importance of certain fortresses in Spain.
5. Strategical points, in many cases, have lost their former importance - 197
6. Changes which have occurred since the campaign of 1815 - - 198
7. Movement of troops by railway in England - - - - - - 198
   Proportion of transport, to infantry: proportion to cavalry and artillery.
   Time for loading the trains.
8. Platforms and arrangements, for loading and unloading - - - 199
9. Conveyance of volunteers, no criterion - - - - - - 199
10. Conveyance of gunpowder - - - - - - - - 200
11. Celerity gained for the offensive - - - - - - - - 200
    Grant's railway, before Petersburg.
    Railways for defence, likely to be of more importance.
12. Changes effected by railways on both sides - - - - - 200
13. Influences on the use of railways, for alleviating sufferings, and shortening duration of war - - - - - - - - - 201
14. Value for concentrating from outlying districts - - - - - 201
    Transport of French and Austrian troops by rail, during the war in Italy, in 1859.
    Concentration of German troops, in Danish war, of 1864.
    Assembly of Prussian armies, on frontiers, in 1866.
    Time for preparation and movement will be shortened.
    Rapid movement accomplished by a beleagured Federal army.
15. Future value of railways relating to marches, supplies, and ammunition - 203
    Movement of a Russian corps in Hungary, in 1849, and of the Austrian army, into Polish provinces, in 1854.
    Movements of the French army, in 1854, towards the Crimea, and in Italy, in 1859.
    Transport of English and French armies, across the Black sea, from Varna, in 1854.
16. Advantages conferred on naval powers - - - - - - 204
    Steam on the whole, will be in favour of defence.

PAR. PAGE
17. Railways and improved roads; articles for the soldier to carry - - 204
18. Flank movements by rail - - - - - - - - - - 204
19. Rate of movement, of Prussians and Austrians, in 1866 - - - 205
Railways in an enemy's country, less advantageous.
Movement of troops by rail, in face of an enemy, during the Italian campaign of 1859.
20. Power of concentrating resources on a distant frontier - - - 205
Causes of railways, subsequently favouring the defence.
21. Influence of railways, exemplified in Sherman's campaign in Georgia - 206
Enterprises of cavalry, against the railway.
22. Railways inapplicable in an enemy's country, for transport of the advancing army - - - - - - - - - 207
Restoring portions of broken lines.
23. Retrograde movement of the Saxon army, by railway, to unite with the Austrian army - - - - - - - - 207
Obstructions attempted by the retiring Saxons.
24. Withdrawal of the army of Hesse-Cassel, from the approaching Prussians 208
25. Concentration of the Austrian army, about Vienna in 1866 - - 208
26. Direction of invader's attack - - - - - - - - - 210
27. Austrian railway communication cut in 1866 - - - - - 210
Communication through Prague, not closed to the Prussians.
28. A fortress intercepting a line of railroad - - - - - - 210
29. Advantages resulting to the invaders, from neglecting to close all lines to them - - - - - - - - - 211
30. Railway employées attached to each Prussian army - - - - - 211
31. Ready means of destroying railways - - - - - - 211

SECTION II.

TELEGRAPHY, TRANSMISSION OF ORDERS, AND SIGNALLING 212-217

Electric Telegraph.

1. Application of the telegraph to military operations - - - - - 212
2. Influence exercised by telegraph, in offensive and defensive operations - 212
3. Field telegraph of the Prussian armies - - - - - - 214
Abyssinian telegraph equipment.
4. Tapping the wires - - - - - - - - - 214

Transmission of Orders.

5. Characteristics of orders - - - - - - - - - 215
6. Risks of confiding orders to a single messenger - - - - - 215
7. Error in not being sufficiently explicit - - - - - - 215
8. Method adopted in the Prussian army, for communicating orders - 216

Signalling.

9. Signalling and telegraphy - - - - - - - - - 216
10. Important use of telegraphic signals, made by Napoleon - - 217

SECTION III.

PAR. PAGE
INFLUENCE OF RIFLED ARMS - 217-221
1. Speculations as to changes in warfare, on the introduction of arms of precision 217
2. Advantages conferred on an army, awaiting the attack . . . 218
3. Shelter obtainable from ground, obstacles, field works, &c. . . 219
Important part, field works will occupy, in consequence.
4. Probable effect of improved arms, upon cavalry movements - . . 219
5. Jomini's opinion, as to probable changes, caused by improved fire-arms 220
6. File firing and volley firing 220
7. Ammunition expended by the Prussians at Königgrätz . . . 221
8. Volley firing from small bodies, in the Prussian army . . . 221
Number of rounds carried.
Prevention of too rapid an expenditure of cartridges.

PART IV.

TACTICS.

CHAPTER I.

PAR. PAGE
COMBINATIONS OF THE DIFFERENT ARMS - - - 222-243
1. Definition of tactics - - - - - - - - - 222
2. Great practice requisite to be a tactician. The aim of tactics - 222
3. Each arm subordinate to its combination with the others - - - 223
4. Napoleon's system of war; its results - - - - - - 223
5. Great results obtained by Napoleon, from the great camp of Boulogne - 223
6. Tactics of the battle of Austerlitz, the model for a long period - 224
7. Uncertainty of tactics, after a long peace - - - - - - 224
8. Law of modern manœuvres and battles - - - - - - 225
9. Observations on Prussian and French tactics - - - - - 225
10. Avoiding unnecessary exposure of infantry - - - - - 226
11. Independence allowed to artillery, in movement - - - - - 226
12. Association of cavalry with artillery - - - - - - 227
13. Losses sustained at Austerlitz, from oblique fire of French artillery - 227
14. Taking the initiative - - - - - - - - 227
    Turning movements, and attacks by main force.
    Driving the defensive army from its position.
    Supporting the first line, and employing the combined arms.
    The combined Arms, at the critical moment.
15. Manœuvring round a flank - - - - - - - - - 229
16. Manœuvres and turning movements will be preferred - - - 230
17. Selection of point of attack, test of genius and military instinct - - 230
18. Determining the decisive point - - - - - - - 230
19. Formation and march of troops, for the attack of position - - 230
20. Commanding ground of an enemy's line, usually the point of attack - 231
    Menacing the enemy's line of retreat preferable.
21. Two ways of obliging an enemy to abandon a position - - - 231
22. Pressing an enemy's line back, and seizing on commanding points - 231
23. Operating with a superior force on a decisive point - - - - - 231
    General rules applicable to battles.
24. What should be avoided on a field of battle? - - - - - 232
25. Application of tactical talent; disconcerting the opponent - - - 233
    Proper moment for use of reserves.
26. The opportune moments, for the decisive blows, at Waterloo, Marengo, Borodino - - - - - - - - - 233
    Cause of the final reserve of Napoleon, not having been employed at Borodino.

PAR. PAGE
27. Wellington's use of the sixth division, as a reserve at Salamanca - - 234
28. Non-employment of the reserve by McClellan at the battle of Antietam 234
29. Taking the initiative in strategy and in tactics; relative advantages and disadvantages - - - - - - - - 235
30. Whether an army posted behind obstacles should there await the attack? - 235
31. Obstacles to an attacking force, may increase the effects of the fire on them 236
32. During a battle each arm in its turn becomes the principal element - 236
33. Distribution of artillery along the line - - - - - - 236
Concentrating fire on a single point.
34. Direction of fire; on the defensive and offensive - - - - 237
35. Pace for artillery, to support cavalry - - - - - - - 237
36. Artillery supports, for defence - - - - - - - 237
37. When threatened by infantry - - - - - - - - 237
38. Skirmishers attacking artillery - - - - - - - 238
39. Acting against the Arms, when separated - - - - 238
40. Obstruction of a charge by obstacles - - - - - - - 238
41. Distance between echelons - - - - - - - - 238
42. The attack in echelon: its advantages - - - - - - 238
43. Conditions for offensive and defensive battles - - - - 239
44. Favourable hour for the attack - - - - - - - 239
45. Battles dependent on the General and troops - - - - 240
46. The contending armies at Waterloo - - - - - - - 240
State of the ground.
47. Lateness in commencing the battle - - - - - - 241
48. Tactical errors of Napoleon, at Waterloo - - - - - - 241
49. Expected direction of attack at Königgrätz - - - - 242
50. How the Prussian Guard got into Chlum - - - - - - 242

THE THREE ARMS.

CHAPTER II.

Section I.

PAR. PAGE
CAVALRY 244-269
1. First rise of cavalry into importance 244
English cavalry under Cromwell.
2. Turkish cavalry in past ages 244
3. Numerical proportion 245
4. Reserves of cavalry 245
Limit recommended by Marmont.
5. As to the future employment 245
6. Future of cavalry: its moral effect 246
7. Cavalry combined with artillery 246
8. Qualities requisite for a cavalry-general 247
Sheltering from fire, previous to the attack.
9. Examination of ground, previous to a charge 247
Obstacles met with at Talavera.
At the battle of Courtrai, at Leipsic.
10. Ground at Zorndorf, previously examined by Seydlitz 248
Warnery, as to the security and attack of flanks.
11. The management of cavalry in the field 248
Qualities requisite for a cavalry-leader.
12. The squadron, the unit 249
13. Speed and weight opposed 249
14. Valises 249
15. Rapidity of movement 249
16. Without means of influence, from use of firearms 249
17. Heavy and light weights 250
18. Experiences in German war of 1866 250
Reduction of dead weight.
19. Security conferred by cavalry 251
20. Functions of cavalry 251
21. Business after a victory 251
22. Mode of fighting adopted in North American civil war 251
Want of cavalry, after decisive actions.
23. Incompleteness of British victories, from deficiency 252
24. Chief duty of cavalry 252
Support for the attack of cavalry, against a line.
Attack of infantry, previously shaken.
25. Attack on squares at Salamanca: opinion of Wellington 253
26. Attack on Prussian squares, at Langensalza 253
Austrian cavalry on Prussian Infantry, in the campaign of 1866.

PAR. PAGE
27. Opportunities on the defensive 253
28. Charges directed on flanks of infantry 253
29. Ambuscade of Blucher, on retreat from Bautzen 254
Flank attack of cavalry, on French infantry.
30. As to the independence of cavalry in action 254
31. Non-employment of Austrian cavalry, at Königgrätz 255
32. Precautions against a line of cavalry, being taken in flank 255
33. Rallying the first line 255
Holding squadrons in reserve.
34. Defeat of French cavalry under Murat, at Wachau 256
Absence of a second line for rallying on.
35. Neglect of English cavalry reserves, during the Peninsula war 257
36. Oblique line of attack
Concealment of dispositions.
37. Gaining an enemy's flank 258
38. Covering movements and flanks by skirmishers 258
French cavalry defeated at Wurzburg.
Taking the initiative, and keeping a reserve.

Echelon Movements.

39. Occasions when advantageous 259
40. Extent of front 259
41. Full lines and echelons 259
42. Two lines of Prussian cavalry, at Château-Thierry 260
43. Passage of lines, in echelon 260
44. Difficulties of an advance in line 260
45. Formation of columns of attack 261
46. Charges by successive echelons, at Austerlitz 261

The Lance and the Sword.

47. Marmont's preference 261
48. The lance in a mêlée 262
49. Jomini's opinion 262
The lance in the front rank.
50. The lance in the hands of a trained man 262
51. Lancers, in the time of Cromwell 263
52. Protection from sword cuts 263
53. Cutting *versus* thrusting 264
Warnery's opinion.
54. Experience of General John Jacob 264

The Charge.

55. Object of the charge 265
56. Reserves in readiness 265
57. Following up after a success 265
58. Weakness after a success 265
59. Employment at the right moment 265
60. The last reserve usually decisive 266

PAR. PAGE
61. Advantages of equitation - - - - - - - - - 266
Direction of charges.
Practice of avoiding the point of attack, at drills.
Marmont's plan for training cavalry horses.
62. Form of Austrian cavalry attacks - - - - - - 267
63. Cavalry awaiting a charge - - - - - - - - - 267

Light Cavalry.

64. Cossacks, as light cavalry - - - - - - - - 268
65. Marshal Saxe, on the necessity of light cavalry - - - - - 268
66. Absence of Confederate cavalry, previous to Gettysburg - - 268
Federal losses sustained from cavalry.
Advantages arising from sufficient cavalry.

SECTION II.

IRREGULAR CAVALRY AND MOUNTED RIFLES - - 269–276

Irregular Cavalry.

1. Peculiarities of irregular cavalry - - - - - - - 269
Influence of a numerous cavalry.
Importance of the Cossacks.
2. Their danger and unexpected attacks - - - - 270
Dissimilarity from the order of regular cavalry.
Rapidity and warlike ardour.
Menacing attitudes.
3. Ponies and inferior weapons of Cossacks - - - - - - 271
4. Native and irregular cavalry of India - - - - - - 271
5. Habits and customs of the Cossacks - - - - - - - 272

Mounted Rifles.

6. The original dragoon - - - - - - - - - 272
7. Original designs of the dragoon - - - - - - - 272
Employment during the American Civil War.
8. Adoption of mounted rifles, in North America - - - - - 273
9. Advantage to be derived from the improved firearms - - - 273
10. Horse and foot duties combined - - - - - - - 273
11. Their services, through the North American Civil War - - - 273
12. Attack on a rear guard, at Sailor's Creek - - - - - 274
13. Use of fire-arms, by English and French cavalry, in the Pyrenees - - 274
14. Services of dismounted French dragoons, in the pursuit to Corunna - 274
15. Origin of dismounting with the Cossacks - - - - - - 274
Success, when skirmishing.
16. Uses which mounted rifles might be turned to - - - - - 275
17. Services of mounted rifles, at the close of the American Civil War - - 275

CHAPTER III.

PAR. PAGE
ARTILLERY 277-309
1. Requirements of a General of Artillery 277
2. Strategist and tactician 277
3. Knowledge respecting each branch 277
4. Progress of artillery under the French general, Senarmont . . 277
5. Proportion of field artillery to the other arms 278
6. Maximum number, per thousand men 278
7. Numbers at Austerlitz and at Solferino 279
Numbers employed by Frederick the Great.
Numbers which might accompany an army.
8. Proportions in the Prussian armies, in 1866 279
9. Classification of artillery 279
10. Field artillery, organized in batteries 280
11. Horse artillery, first established 280
12. The battery, the unit 280
13. Purposes for which field batteries, are suitable 280
Rapidity of movement, when of value.
14. Light material and easy movement required 281
15. Organization of present system of field batteries 281
16. General utility of field or mounted artillery 281
17. Progress in artillery tactics 281
Detached masses of artillery, supported by cavalry.
18. Flank fire of Prussian artillery, at Königgrätz 282
19. French guns detached at Solferino, to take their opponents obliquely . 282
20. Prussian batteries detached at Koniggrätz 282
21. Austrian method of selecting advantageous ground for batteries . . 282
22. Future association with infantry 283
23. More fully developing the mobility of field guns 284
24. Advantages to be obtained, from increased mobility 284
Rifled guns of large calibre, as guns of position.
25. Equipment of Prussian field batteries 284
Adaptability for rapid movements and conveyance of gunners.
26. Means of adaptation of Austrian batteries for the movements of cavalry 285
27. Accuracy and quickness of fire combined with celerity of movement . 285
28. General rule for quickness of fire 285
29. Rate of firing from Armstrong rifled and smooth-bored guns . . 285

Reserve Artillery.

30. Objects of batteries of position 286
31. All field artillery formerly position artillery 286
32. Usual place of reserve artillery 287
33. Importance of the reserve at Marengo 287
34. Reserves moving with facility 287
35. Horse artillery, proper for reserves 287
Influence of the reserve of light guns, at Eylau.

PAR. PAGE
36. Employment of reserves by Napoleon at Lutzen - - - - - 287
Non-employment of the reserves, by the allies.
37. Principles in the selection of a position - - - - - - - 288
38. First duty after placing a gun in position - - - - - - - 288
39. Ground affording natural cover - - - - - - - - 288
40. Guns on the brow of a hill - - - - - - - - - 289
41. Artillery in advance of other troops - - - - - - 289
42. Employment offensively and defensively - - - - - - 289
43. The principal part taken by each arm, as circumstances require - 289
Special duty of divisional batteries.
44. Infantry and cavalry subordinate, when protecting - - - - - 290
45. Posting guns, on suitable ground - - - - - - - - 290
Error in the position on the hill at Solferino.
Concentrated fire of artillery.
46. The fire of artillery - - - - - - - - - - 290
47. Least effective direction of fire - - - - - - - - 291
Proximity to enemy's riflemen.
48. Formation of artillery in action - - - - - - - - 291
Guns retired in echelon.
49. Oblique direction of each piece, for concentration of fire - - 291
50. Uses and application of artillery, in engagements - - - - - 291
51. Choice of the object to be fired at - - - - - - 292
Fire not to be scattered.

Descriptions of Fire.

52. Fire and nature of projectile - - - - - - - - - 292
53. Nature of fire against a deployed line - - - - - - 293
Against columns.
Against the French at the bridge of Lodi.
54. When used against wooden breastworks, &c. - - - - - 293
55. Use of case shot, shrapnel and segment shells - - - - - 294
56. Employment of mortars - - - - - - - - - 294
57. Fire at high angles - - - - - - - - - - 294
58. The $5\frac{1}{2}$ inch and $4\frac{2}{5}$ inch mortars - - - - - - - - 295

Enfilade and Oblique Fire.

59. Direction of fire on lines of troops ; on columns - - - - - 295
Effects of reverse fire.
Ney's movement at Bautzen, checked by flank fire.
60. Oblique fire of French at Marengo, at Ligny, and at Austerlitz - - 295
Ney's movement at Bautzen.
61. Extension of enfilade and oblique fire - - - - - - 296

Massing Guns.

62. An unexpected number of guns, on the most important point - - 296
Progress of artillery.
Difficulties at times, and objections to massing guns.
63. Period for the employment of guns 'en masse' - - - - - 297
Particular point to be employed on.
Limit to the number of guns, composing a mass.
64. Application of the reserve and divisional batteries - - - - - 297

Concentration of Fire.

PAR. PAGE
65. Concentration of artillery at Talavera 298
66. Fire of French artillery at Solferino 298
67. Increased offensive powers of artillery 298
68. Concentrated fire of divisional artillery, at Friedland 299
69. Final direction of fire at Friedland 299
  Junction of the two grand batteries.
70. Introduction of artillery masses, at Boulogne 300
  Their employment, at Wagram.
71. Advantages of concentrated fire 300
  Employment at Austerlitz and Lutzen.
  Increased areas for concentration, obtained from rifled guns.
72. Effect produced by two English guns, at the Alma 301

Siege Artillery.

73. Object and equipment of siege artillery 302
74. Nature and number of pieces of ordnance 303
75. Transport of guns and mortars 303
76. Time for arming siege batteries 303
77. Opening fire from the batteries 304
78. Destruction of earthen parapets 304
79. Breaching masonry 305
80. Breaching with rifled ordnance 305
81. Penetration of rifled guns 305

Garrison Artillery.

82. In the defence of a fortress 306
83. Armament of coast batteries 306
84. Defence of coast batteries 306
85. Resistance of iron plates 307

Rockets.

86. Original rockets 307
87. Rocket carriages and tubes 307
  Hale's rockets.
88. Service rockets 307
89. Convenience of rockets 307
90. In mountains and elsewhere 307
91. When advantageous 308

CHAPTER IV.

SECTION I.

INFANTRY 310–320
1. Importance of infantry : its proportion 310

PAR. PAGE
2. Successes gained by infantry - - - - - - - 310
3. Restoration by the Swiss of infantry, to proper estimation - - - 310
4. The company, the element of organisation ; the battalion, the unit - 311
Conditions in the numerical composition of a battalion.
5. Movements of Prussian soldiers in the field - - - - - - 311
6. Leading part, performed by infantry - - - - - - 312
7. Qualities of the British soldier, in the field - - - - - - 312
8. Excellence of the French soldier: vigour of the British infantry - 312
9. Marshal Bugeaud, on English infantry - - - - - - 313
10. Functions of infantry - - - - - - - - 313
11. Object of a charge of infantry - - - - - - - - 313
12. Infantry marching to the attack of guns - - - - - - 313
13. Failure of the French at Leipsic, to carry the batteries - - - 314
14. Usual results of infantry charging infantry - - - - - 314
15. Jomini's opinion, as to two bodies of infantry crossing bayonets - - 314
16. Formation and manner of combat of the Prussian infantry - - 314
Basis of formation, of the French battalion.
17. French battalion column formations, at Solferino - - - - - 315
French skirmishers.
Employment of deep contiguous columns, in the attack of posts.
18. Skirmishing in use, amongst French troops - - - - - 316
19. Formation of the Prussian battalion, by company columns - - - 316
20. Modifications arising from rapidity of fire - - - - - 317
Prussian column of manœuvre and column of attack.
Formation of the Prussian skirmishers.
Austrian formation for attack.
21. Movements of Austrian infantry - - - - - - - 318
22. Facility of Movement of Prussian company columns - - - - 318
Manner of throwing out Prussian skirmishers.
General principle of Prussian tactics.
23. Advantages of battalion or Prussian company columns - - - 319
24. Characteristics of the Prussian system - - - - - - 320

SECTION II.

COLUMN AND LINE FORMATIONS - - - - - 320–329
1. Employment of shallow formations - - - - - - - - 320
Line of skirmishers.
2. Column formations, at Vimiero - - - - - - - - 321
Close columns opposed to fire and charges.
3. English lines and French columns, at Albuera - - - - - 322
Napier's description of the close of the contest at Albuera.
4. Protracted combat, between an English line and Russian column at the Alma 323
5. Wellington's system of combat - - - - - - - - 325
6. Formation of the 3rd division at Waterloo, by battalions formed on the two centre companies - - - - - - - - - 325

PAR. PAGE
7. Jomini on columns and deployed lines - - - - - - 326
8. Whether rifled small arms, will bring about any important changes? - 327
9. Conclusions drawn by Jomini - - - - - - - - 328
10. Jomini's convictions borne out by the results of the American civil war 328
11. Increased mobility by column formations - - - - - 329

SECTION III.

INFANTRY OPPOSED TO CAVALRY - - - - - - 329-336
1. Infantry resisting cavalry alone, also cavalry with artillery - - - 329
2. Cavalry and infantry encounters, in the German war, of 1866 - - 330
3. Question of retaining or abolishing infantry squares - - - - 330
4. A deployed battalion, with the wings supported - - - 330
5. Attack on French squares, near Almeida, by cavalry and horse artillery - 330
6. English squares at Fuentes Onoro, followed by French cavalry - - 331
7. Skirmishers attacked at Redinha - - - - - - - 332
8. French infantry attacked and broken at Salamanca - - - - 332
9. Formidable cavalry attacks on squares; at Waterloo, Auerstadt and Gross-Aspern - - - - - - - - 333
Cavalry charge on Russian infantry, at Eylau.
Marlborough's attack on cavalry, at Blenheim.
10. French cavalry attacks at Waterloo - - - - - - 335
Napoleon's irreparable losses, both in time and in cavalry.

CHAPTER V.

SECTION I.

CHOICE OF A POSITION - - - - - - - - 337-350
1 Increased size of fields of battle - - - - - - - 337
Shorter period for reconnoitring.
2. Knowledge of and study of the ground - - - - - - 337
3 A position, oblique to the line of operation - - - - - - 338
4. Strategic and tactical positions - - - - - - - - 338
Characteristics to be sought.
Rules for selecting tactical positions.
5. The possession of La Haye Sainte, at Waterloo - - - - - 340
6. Ground, generally most advantageous - - - - - - 341
Obstacles in the front of a position.
Defensible points of a position.
The hill at Solferino; posts in front of Balaklava.

PAR. PAGE
7. Impediments to the attack - - - - - - - - 343
8. Villages when not to be occupied - - - - - - - 344
9. Principal obstacles met with - - - - - - - 344
Defence of heights, &c.
10. An army awaiting an attack - - - - - - - - - 345
11. Positions strengthened by field works - - - - - - 345
12. Means for retreating from a defensive position - - - - - 345
The forest of Soignies at Waterloo.
13. Napoleon's criticism on the position at Waterloo - - - 346
Jomini's opinion.
14. The Austrian position at Königgrätz - - - - - - - - 346
15. River in rear of the Austrians - - - - - - - - 347
16. Conflux of rivers at Leipzig - - - - - - - - - 347
17. Maintenance of communications in rear - - - - - - 348
18. Defects assisted by art - - - - - - - - - 348
19. Position of the Federal army at Gettysburg - - - - - 349
Cover obtained by trenches and felled trees.
Cover afforded to the reserves.
20. Russian position at the Alma - - - - - - - - - 350

SECTION II.

FORMATION OF THE LINE OF BATTLE - - - - 350–358
1. Disposition of the troops on eligible ground - - - - - - - 350
2. Lines of battle and orders of battle - - - - - - 351
3. Reflections when an army is posted - - - - - - - 351
4. Judging how to occupy a position - - - - - - 351
5. Intervals in a line of battle - - - - - - - - - 351
6. Lines of formation for the line of battle - - - - - - 352
7. Spaces between the lines - - - - - - - - - 352
Formation for the second line.
8. Variations and modifications on a battle-field - - - - - 352
9. Reasons for placing cavalry on the flanks - - - - - - 353
Posting of small bodies of cavalry.
10. When cavalry may be posted otherwise - - - - - - 354
11. Where artillery should be placed - - - - - - - - 354
Artillery and infantry relatively.
Direction of artillery fire.
12. Positions for artillery - - - - - - - - - 355
13. Points for the attention of artillery - - - - - - - - 355
Supports for batteries.
14. Guns when on an unsupported flank - - - - - - 355
15. Localities, when favourable or otherwise - - - - - - 355
16. Sheltering and masking guns - - - - - - - - 356
17. Sites for posting guns - - - - - - - - - 356

PAR. PAGE
18. Salient points, for divisional guns 356
19. Predominance of arms, should determine their positions 356
20. Connecting the reserves with the lines 357
21. Introduction of reserves, by Napoleon 358
22. Position of reserves 358

CHAPTER VI.

Section I.

ORDERS OF BATTLE 359-380
1. A battle, viewed as a dramatic act 359
2. When an army is inferior to its adversary 359
3. Fixing on the points of attack 359
4. Influences affecting the point of attack 359
5. Advantages and disadvantages, of the assailant and assailed . . 359
    Determining the decisive point.
    Circumstances connected with its choice.
6. Objects of an offensive battle 361
    Orders of battle.
    The parallel order.
    The parallel order with a crotchet.
    The parallel order reinforced on one part of the line.
    The oblique order.
    Application of the oblique order at Leuthen.
7. Obtaining the oblique order 362
    Preserving the obliquity with the refused wing.
8. Period of engaging with the refused wing 363
    Suitable formation for the attack on a flank.
    Continuity of the line.
9. Object of refusing a wing 364
10. Napoleon's opinion respecting the oblique order 364
    Object of the oblique order.
11. The oblique order, theoretically speaking 364
12. The perpendicular order 365
13. Echeloned on the centre 365
    Suitable in the attack of an intrenched camp.
14. Echeloned on the centre; a variety of the salient order . . 366
15. Employment of cavalry in the salient orders 366
16. Angular formation of the Austrian line of battle, at Königgrätz . 366
17. Salient formation of the Austrians, at Prague 367
18. Examples of the convex and salient orders 368
19. When the salient order may be resorted to 368
20. Application of the convex order 368
21. The concave order 369
22. Its employment by the Russians, at Austerlitz 369

PAR. PAGE
23. Errors of the assailants, at Gettysburg - - - - - - 369
24. Attacking both flanks simultaneously - - - - - - 370
25. Attack on both wings, when admissible - - - - - - 370
26. Error of the French attack, under Junot, at Vimiero - - - - 370
27. Turning manœuvres and extending movements - - - - - 371
    Interval of the Austrians at the battle of Prague.
    Extended movement of Frederick, at Torgau.
    Napoleon's success, at Rivoli.
    Détour of the allies, at Austerlitz.
    Marmont's mistake, at Salamanca.
    Turning manœuvres need support elsewhere.
    Cutting a line of communication preferable.
28. Column of attack not employed by the allies, at Austerlitz - - 372
29. Movements of Marmont and Wellington, previous to the battle of Salamanca - - - - - - - - - 373
30. Marmont's manœuvre to prevent the retreat of his opponents - - 374
31. Wellington's counter-attack, at Salamanca - - - - - - 375
32. Marmont's inability to retrieve his error - - - - - 375
    Wellington's character as a tactician established.
33. Attempt to turn the right flank of the British, at Inkerman - - 376
34. Danger attending the attempt to outflank - - - - - 376
35. Positions intersected by obstacles - - - - - - - 377
36. When a portion of a front is covered - - - - - - 377
37. Utilizing a shallow stream - - - - - - - - 378
38. Attack on the Northern American army, by the Confederates, at Fair Oaks - - - - - - - - - - 378
39. Changes of front - - - - - - - - - 378
40. Nature of guns for covering changes - - - - - - 379
41. Napier's critic on the battle of the Alma - - - - - - 379

Section II.

DEFENSIBLE POSTS OF A POSITION - - - - - 380–385
1. Importance of military posts when defended - - - - - 380
2. Their importance, dependent on their positions - - - - - 380
3. Napoleon's design in the attack on La Haye Sainte - - - 381
4. Advantages following its possession by the French - - - 381
5. Echelon formation for the attack of a post - - - - - - 382
6. The attack of villages avoided by Frederick and Napoleon - - 382
7. Importance of advanced posts - - - - - - - 383
8. Periods in the attack of a village - - - - - - 383
9. Suitability of villages for occupation - - - - - - 383
    Steps to be adopted for the defence on first occupation.
10. Method of defence, employed by the Prussians and Austrians - 384
11. Position for artillery, and the use of barricades in the defence - - 384
12. Walls, hedges, and streams ; how to be dealt with - - - 384

CHAPTER VII.

SECTION I.

PAR. PAGE
MARCHES PRECEDING BATTLES 386–390
1. Secret of war in marching 386
2. Estimation of the strength of an army by the rapidity of movement . 386
3. March of the English Light Division, after Talavera 386
4. March of Pomeranian hussars, in 1866 386
5. Napoleon's forced marches to the relief of Dresden 387
6. Tactical movements of armies 387
7. Manœuvres of English and French armies previous to the battle of Salamanca 387
8. March of the two armies, with a view of seizing the heights over the Guarena 388
9. Observations on the movements 389

SECTION II.

THE MARCH OF COLUMNS 390–398
1. Their strength and communications 390
Disaster of the Archduke John, at Hohenlinden.
The Austro-Russians, at Austerlitz.
2. Principles to be adhered to 391
3. Effects of cultivation on military movements 391
4. Length of a column 392
Length of time to form line of battle.
5. The security of the front and flanks 392
Regulating the march.
6. Moving to battle 392
Selection of routes.
Position of artillery.
Close order of columns.
Order of march.
Position of cavalry.
Subdivision of columns when about taking up positions in line.
7. Military train carriages and baggage 394
8. Unexpected meeting of two armies on the march 395
Halting and formation of the advanced guard.
9. March of the hostile armies, previous to the battle of Solferino . . 395
Balloon observations.
Routes of the various corps.
10. First encounters at early dawn 397
Flanks ordered to close on the centre.
Decision made to attack Solferino.

SECTION III.

PAR. PAGE
FLANK MARCHES - - - - - - - - - 398-402
1. Making a flank march before an enemy in position - - - 398
2. Tactical and strategical - - - - - - - - - 398
3. Risk in offering a flank - - - - - - - - - 399
Position and composition of the columns.
Order of march to a flank.
4. Prussian flank march on Waterloo - - - - - - 400
5. Approach of Prussians, ascertained by Napoleon - - - - - 401

CHAPTER VIII.

RETREATS AND PURSUITS - - - - - - - 403-430

1. A retreat, in presence of a superior force - - - - - - 403
2. Retreat, well conducted before a superior force, denotes the real soldier 403
3. Decamping during the night - - - - - - - - 403
4. Commencement of Sir John Moore's retrogade movement . - 403
5. Measures to prevent discovery of a retreat - - - - - 404
6. Length of marches - - - - - - - - - - 404
Causes determining retreats.
7. Withdrawing from a contest - - - - - - - - 405
8. Five methods of conducting a retreat - - - - - - - 405
Second method, when used by Napoleon.
Third method, when used by Prussians.
Fifth method, by eccentric lines.
When divergent retreats are admissible.
Direction strategically considered.
Soult's withdrawal from the Pyrenees.
Suitability of Spain and Turkey for parallel retreats.
9. Lateral movements in a retreat - - - - - - - - . 408
Wellington's line, when retreating from Busaco.
When lateral retreats may be undertaken.
10. Retarding the progress of a pursuing enemy - - - - - 408
11. The pursuing army retarded by the resistance of artillery - - 409
12. Arrangements for the hours of departure and halts - - - - 409
13. Wellington's opinion respecting Sir John Moore's movement of retreat - 410
14. Rallying a retreating army - - - - - - - - 410
15. Dispositions respecting the retreating army - - - - . 410
Suitable hour for a retreat.
Occupation of formidable positions.
The position of the English at Busaco, attacked by Massena.
16. Dispositions for the attack at Busaco . - - - - - - 411
Retirement of the English army.
17. Distance to be maintained by rear guards - - - - - - 412
When advisable to assume the offensive.

PAR. PAGE
18. Replenishing stores and supplies - 412
19. Retreats favourable before a languid enemy 413
20. Cause of disorders in a retreat 413
21. When the line of retreat is intercepted by a stream 413
22. Consequences to Moore and Wellington by the bridges at Mamilla and Pœlencia not being broken - 414
23. Circumstances attending the retreats of Wellington and Moore - . 414
24. The command of the rear guard 415
  Use of cavalry with a rear guard.
25. Reserve of cavalry for covering a retreat 415
  Object of the artillery of the rear guard.
26. Instance of use of artillery during a retreat, in North America . 415
27. Protection afforded, after Austerlitz, by artillery - 416
28. Retreat of the Austrian army, after Königgrätz 416
29. Positions taken up by the Austrian artillery 417
30. Pursuit by the Prussians 418
31. Retreat of the allies, after Bautzen - 418
  Protection of the rear by artillery, supported by cavalry.
32. Soult's retreat on Toulouse 419
  Pursuit obstructed by the combat at Tarbes.
33. Retreat of the English army, under Sir John Moore, on Corunna - . 420
  Vigorous pursuit by Soult.
34. Examination of roads and harbours, and formation of magazines, in anticipation of retreat and change of base 420
35. Cause leading to the battle at Corunna 421
36. Soult's retreat, after Albuera - 421
37. Losses on both sides - 422
  Reduced state of the Spaniards from want of food.
  Beresford's resolution in holding his position and showing a confident front.
38. Retreat of the Prussian army on Wavre 423
39. Retreat of the English army from Quatre Bras, on Waterloo - . 424
40. Hour at which the retirement commenced 425
41. Incidents from Quatre Bras to the position at Waterloo - . . 425
42. Complete order of the retreat from Quatre Bras 425
43. Withdrawal of the 3rd Division from Quatre Bras 426
44. Retreat of Grouchy to France - 426
45. Conduct of pursuits 428
46. Advantage with the pursuers - 428
  Direction of pursuit.
47. Object of a pursuit - 429
  Description of troops adapted.
48. Point of junction of roads in front to be held - 429
  Opportunities for retarding the pursuit.
49. Employment for artillery - 430

PART V.

MINOR OPERATIONS AND MISCELLANEOUS.

CHAPTER I.

SECTION I.

PAR. PAGE

MOUNTAIN WARFARE - - - - - - - 431–439

1. Value of forts well located - - - - - - - - 431
2. Position and elevation of forts - - - - - - - 431
3. Posts at the foot of heights - - - - - - - - 431
4. Natural strategic points - - - - - - - - 431
5. Roads and communications - - - - - - - 432
6. Points to be enquired into - - - - - - - 432
7. Points to be considered, in examination of a mountainous country - - 432
8. Mountain rivers - - - - - - - - - 434
9. Difficulties of mountain warfare, on the side of the offensive - - 434
10. Direction of the offensive - - - - - - - - 435
    Danger of forming too many columns.
    Passage of the Saint Bernard.
11. Passage of the Alps, by Napoleon - - - - - - - 435
    The army arrested by Fort Bard.
    Stratagem resorted to for extricating the guns.
12. Character of mountain warfare - - - - - - - 436
    Disadvantage with the assailant.
13. Wellington's method - - - - - - - - - - 436
14. The Archduke Charles on the theory of mountain warfare - - 437
15. Essential points for defence - - - - - - - - 438
16. The Guerilla system of warfare in Spain - - - - - - 438
17. Precautions against surprise for mountain guns - - - - - 438
    Selection of suitable positions for guns.

SECTION II.

DEFILES - - - - - - - - - - - - 439–451

1. Attack of a defile - - - - - - - - - - 439
2. When the bordering heights are inaccessible - - - - - 440
3. Columns for the attack - - - - - - - - 440
4. Position for the defence of a defile - - - - - - 440

PAR. PAGE
5. Principles for selection of defensive points - - - - - - 441
6. Position in rear of a defile - - - - - - - 441
7. Engagements within a defile - - - - - - - - 442
Favourable point within a defile.
8. Turning a defile - - - - - - - - - - 442
9. Tactical importance of a defile - - - - - - - 443
Position and part taken by the artillery.
Attack and defence of a height.
10. Defending the passage with artillery - - - - - - 445
11. Action of artillery in the attack - - - - - - 445
12. Precaution to be observed by artillery before entering - - - 445
13. Passage of the Khyber Pass by the British - - - - - 445
14. Passage of the Balkan by the Russians, in 1829 - - - - 446
15. The Pass of Somosierra, forced by Napoleon - - - - - 448
16. Attack on the Pass of Biar, by the French - - - - 450

CHAPTER II.

Section I.

PASSAGE OF RIVERS - - - - - - - 452–471
1. Passages by force or by stratagem - - - - - - - 452
2. Determination of the point of passage - - - - - - 452
Passage of the Rhine, in 1800.
Passage of the Po by Napoleon.
Passage of the Danube, in 1805.
3. Precautions in approaching the point of passage - - - - 453
4. Positions affording facilities for crossing - - - - - - 454
The breadth of the river.
Usual method for opposing the point of crossing.
5. Effect of increased width of the river - - - - - - 455
Improved weapons when favourable to assailant.
Possession of bridge heads.
6. General rules for effecting a passage - - - - - - 456
7. Advantages of a point on the commanding bank, for crossing - - 457
Napoleon's first endeavour to pass the Danube in 1809.
8. Napoleon's successful passage of the Danube - - - - - 458
9. Construction of bridges and batteries, preparatory - - - - 459
10. Influential points, for facilitating the passage - - - - 460
11. Double passage upon a single front - - - - - - 460
12. Seizure of a defensible point upon the opposite shore - - - 461
13. Passage of the Douro by Wellington - - - - - - 462
14. Observations on the passage - - - - - - - 464
15. Passage of the Garonne, at Toulouse - - - - - - 465
Bridge thrown across, near Pensaguel.
16. Passage below Toulouse - - - - - - - - 467

PAR. PAGE
17. Napoleon's passage of the Berezina - - - - - - - - 468
18. Defence of a river - - - - - - - - - - 469
19. Measures to be adopted when not opposing the passage - - - - 469
20. Frederick's opinion as to the difficulties of defence - - - - 469
21. Course to be usually followed by defenders and assailants - - - 469
Position taken up on the heights of Wagram by the Austrian army.
Lee's position with the Confederate army, on the Rappahannock, to receive the Federal army.
22. When the assailant's bank of the river commands that of the other - 470
The Mincio, not defended by the Austrians, in 1859.
Unsuccessful attempt of the Austrians, to cross the Aube in 1814.
23. Position for artillery, for defending the passage of a river, or tête-de-pont 471

SECTION II.

TETES-DE-PONTS - - - - - - - - - 471–473
1. Object and situation of têtes-de-ponts - - - - - - 471
2. Their importance - - - - - - - - - - 472
3. Properties of a tête-de-pont - - - - - - - - 472
4. Occupation of the ground for covering the bridge - - - - 473
Description of works suitable.
When both banks should be occupied.

CHAPTER III.

SECTION I.

RECONNAISSANCE - - - - - - - - - 474–483
1. Its importance - - - - - - - - - - 474
Two kinds of reconnaissances.
2. First step towards success - - - - - - - - 474
3. Hour of departure of a secret reconnaissance - - - - - 475
4. Reconnoitring from commanding ground - - - - - 475
Napoleon's observation of the Allies, before Austerlitz.
5. Some knowledge of fortification - - - - - - - - 475
Habit of observing ground.
6. Reconnoitring ground previous to occupation - - - - - 476
7. Subjects on which information should be obtained - - - - - 476
8. Previous knowledge of obstacles - - - - - - - - 477
Description of guides.
9. Information obtained from spies - - - - - - - - 477
Intelligence collected by the reconnoitring officer.

PAR. PAGE
10. General means of procuring intelligence - - - - - - 477
11. Information by contact of light troops, and making prisoners - - - 478
Cavalry chiefly employed.
Dispositions required to sustain the troops engaged.
12. Requirements of the officer reconnoitring - - - - - 479
13. Necessary qualifications - - - - - - - - - 479
The Austrian position at Königgrätz reconnoitred.
14. Austrian and Prussian patrol systems, in 1866 - - - - - 479
15. The march of the French army, under Marmont, observed by Wellington 480
16. Reconnaissance under Massena, preceding the battle of Essling - - 480
17. Obtaining information after a decisive engagement - - - 481
18. Insufficient reconnaissance after Austerlitz - - - - - - 481
The reconnaissance after Ligny.
19. Patrols on the flanks - - - - - - - - 482
20. Examination of coasts - - - - - - - - - 482
21. Reconnoitring points for a landing - - - - - - 482
Desirable points when defending a coast.

Section II.

ADVANCED GUARDS - - - - - - - 483–488
1. Reconnoitring the country - - - - - - - - 483
2. Protection of flanks - - - - - - - - 483
3. Duty and composition - - - - - - - - - 484
4. Employment of light troops and skirmishers - - - - - 484
5. Proportion to the main body - - - - - - - - 484
Order of march.
Distance from main body.
6. Distance for reconnoitring, and of the advanced guard - - - - 485
7. Moving towards an enemy - - - - - - - - - 485
8. Skilful disposition and employment of a retarding force - - - - 485
Withdrawing, when outnumbered.
9. Austrian corps, in 1866 - - - - - - - - - 486
10. Progress of the French, in 1815, retarded by Zieten's advanced corps - 487
Line occupied by Zieten's corps.
11. Retirement of the Prussians before the French - - - - - 487
Front shewn during the withdrawal.
12. Non-defence of the bridges - - - - - - - - 487

CHAPTER IV.

ADVANCED POSTS; OUTPOSTS - - - - - - - 489–501
1. Qualities of a General of advanced posts - - - - - - 489
Distance to be observed.

PAR. PAGE
2. Vigilance and object - - - - - - - - - - 489
3. Objects of outposts - - - - - - - - - 489
4. Telling-off and placing the advanced posts - - - - - - 490
5. Detection of the enemy's movements - - - - - 490
6. Where usually posted - - - - - - - - - 490
7. Pushing posts forward - - - - - - - - - 491
Preventing encroachments.
8. When in close proximity - - - - - - - - 491
9. Strengthening outposts - - - - - - - - - 492
10. Obstacles to prevent surprise - - - - - - - 492
11. Neglecting to block up the bridge of Ordal - - - - - 492
12. Protection of flanks - - - - - - - - - - 493
Distances pushed forward.
13. Distances of videttes - - - - - - - - - 493
14. Distance of infantry posts - - - - - - - - - 494
15. Support of posts - - - - - - - - - 494
16. Lines of defence and posts of support - - - - - - 494
Information respecting communications and posts.
17. Number and disposition of troops - - - - - - 495
18. Alacrity in watching - - - - - - - - - 495
Instructions for videttes.
19. Composition of troops for outpost duty - - - - - 496
20. Fixing the chain of posts - - - - - - - - - 496
21. Principle to be observed - - - - - - - - 497
22. Intermediate posts - - - - - - - - - - 497
23. Prussian outposts in Waterloo campaign - - - - - 498
24. Fords and collection of boats - - - - - - - 498
Bridge of Laufen, insecurely watched by the Austrians.
Passage of the Douro by means of a boat.
25. Precautions in watching a river - - - - - - - 498
26. Fires and posting videttes at night - - - - - - 499
27. Placing night sentries - - - - - - - - - 499
28. Relieving the pickets - - - - - - - - - 500

CHAPTER V.

SECTION I.

ATTACK OF POSTS - - - - - - - - - - 502-505
1. Knowledge requisite previous to the attack of a temporary work - - 502
Manner of obtaining information.
2. Real and false attacks - - - - - - - - - 503
3. Attack by daylight - - - - - - - - - - 503
Description of troops required.
4. How to deal with an abattis - . - - - - - 504

PAR. PAGE
5. Other obstacles and impediments 504
6. Blowing open barriers, gateways, &c. 505
7. Securing a post after an attack 505

Section II.

DEFENCE OF POSTS 506-511
1. When part of a general line 506
    When an independent post.
2. Requisites to defend a building 506
    Usual defensible properties of a church.
    Wooden and thatched houses, and earthen works.
3. To repel an immediate attack 507
4. Barricading passages, doors, and windows 508
5. Clearing and arranging the ground 509
6. Sorties from houses 510
7. Method of defence to be followed 510
8. Streets and roads to be closed by barricades 511
    Flanking fire requisite.
    Means of retreat available.
9. Posts for the guns 511

CHAPTER VI.

INSURRECTIONS IN TOWNS. STREET FIGHTING . 512-527
1. Form of insurrection 512
2. Requisites for protracted defence 512
3. Means to be adopted for defence 512
4. Defence of stone houses 514
5. Security of public building 514
6. Importance of communications and support 514
7. Provisioning posts 515
    Care of ammunition.
    Nature of the roofs.
8. Conditions for a defensive position 515
    Mode of warfare, advantageous.
9. General rules 516
10. Intercourse with the country 516
    Internal communication.
    Command of bridges.
    Occupation of parks.
11. Measures against cities in a state of insurrection 517

PAR. PAGE
12. Marmont's plan for quelling the insurrection in 1830 - - - - 518
13. Its want of mutual co-operation - - - - - - - - - 519
14. How Napoleon dealt with insurgents in Paris - - - - - 519
15. The defensive attitude assumed by him - - - - - - 519
16. Attack on the Tulieries, repulsed - - - - - - 520
17. Observations on the attack - - - - - - - - - 521
18. Action of troops quelling disturbances - - - - - - 521
When determined resistance is resorted to.
19. Active measures against houses - - - - - - - 522
Employment of artillery.
20. Measures taken against partial risings - - - - - - 522
21. Paris divided into districts, by Cavaignac - - - - - - 523
22. Defence of Saragossa - - - - - - - - - 524
23. Means adopted by the defenders for delaying their assailants - - 525
24. Observations - - - - - - - - - - 525
25. Division of the defenders - - - - - - - - - 525
26. Probable reasons for the success of the French - - - . 526
27. Defence of Tarifa - - - - - - - - - 526

CHAPTER VII.

FIELD WORKS AND SHELTER-TRENCHES - - - - 528–536
1. When intrenching may be resorted to - - - - - - 528
2. Field fortification as an auxiliary - - - - - - 528
Absence of progress.
3. Marshal Saxe's use of intrenchments - - - - - - 528
4. When placed in a bad position, opposed to a superior force - - 528
5. Turenne surprised by Condé - - - - - - - - - 529
6. Tracing field works - - - - - - - - - 529
Dimensions of parapets.
7. Natural obstacles not always sufficient - - - - - - 529
Requisite thickness of earthworks.
8. Artificial cover - - - - - - - - - - 530
Means of egress and ingress.
9. Excavating and obtaining cover - - - - - - - 530
Period required for the execution of the work.
10. Time occupied in throwing up cover at the Dartmoor experiments - 530
11. Supply of tools for obtaining cover - - - - - - - 531
12. The increased importance of obtaining cover - - - - - 531
13. Slight preparation of the ground previous to the battle of the Alma - 532
14. Attacking a position before an enemy intrenches - - - - 532
Marlborough at Donauwerth.
15. Neglect of intrenching at Albuera - - - - - - 533
16. Intrenchments in recent civil war in America - - - - 533

PAR. PAGE
17. Transport of intrenching tools in France - - - - - - 534
18. Intrenching field artillery - - - - - - - - 534
19. French method - - - - - - - - - - 534
Space of time required to throw up cover.

CHAPTER VIII.

SECTION I.

ENCAMPMENTS - - - - - - - - - 537–542
1. Encamping in position - - - - - - - - 537
2. Where to establish cantonments - - - - - - - 537
3. Object of encampments - - - - - - - - 537
Mode of encamping.
4. Determining the choice - - - - - - - - 538
5. Sanitary position for camps - - - - - - - - 538
6. Excavations: shelter from wind - - - - - - - 539
7. Sites for camps - - - - - - - - - 539
Geological considerations.
8. Formations adapted or otherwise - - - - - - - 539
9. Soil affecting health - - - - - - - - - 541
10. Clearance of brushwood - - - - - - - - 541
Trenching and draining.

SECTION II.

MILITARY BRIDGES - - - - - - - - - 542–548
1. Their usual construction - - - - - - - - 542
2. Their classification - - - - - - - - - 543
Weights on bridges.
3. Waggons and carts as bridges - - - - - - - - 543
Raft cask and trestle bridges.
4. Waterproof sheet, trail flying, and swing flying bridge - - - - 544
5. When flying bridges are used - - - - - - - 544
6. Suspension bridges - - - - - - - - - 545
7. Suitable places for their construction - - - - - - 545
Thickness of ice for troops and artillery.
8. Passage of Russians over the Dwina - - - - - - 546
9. Heavy guns over ice - - - - - - - - - 546
10. Destruction of Bridges - - - - - - - - 546
Bridge over the Ticino.

PAR. PAGE
11. Destruction by floating objects - - - - - - - - 546
Stone and wooden bridges.
Method practised at Bayonne.
12. To destroy floating bridges - - - - - - - - 548
Torpedoes for wooden truss and suspension.
13. Destruction by floating bodies during a retreat - - - - 548

Section III.

FORDS - - - - - - - - - - - 549-550
1. Importance of fords - - - - - - - - - - 549
2. Obtaining information concerning them - - - - - - 549
3. Limits of depth: their direction - - - - - - - - 549
4. Precautions in crossing - - - - - - - - - 550
5. Nature of bottom: floods, tides, &c. - - - - - - - 550

Section IV.

CONVOYS - - - - - - - - - - 550-555
1. Descriptions of convoys - - - - - - - - - 550
2. Their disposition for marching - - - - - - - - 550
3. Marching in a continuous column - - - - - - - - 551
4. Surplus waggons - - - - - - - - - - - 551
Disposal of the escort.
March of the convoy.
5. Means of transport - - - - - - - - - - 552
6. Transport adapted to the country - - - - - - - 552
Rates of progress.
7. Precautions respecting gunpowder - - - - - - - - 553
Parking.
8. How to meet an attack: where to place the prisoners - - - - 554
9. Attack of a convoy - - - - - - - - - - 554
10. Attack on the Confederate waggons, after Gettysburg - - - - 555

INDEX - - - - - - - - - - 556-565

LIST OF TREATISES AND WORKS,

FROM WHICH SELECTIONS AND EXTRACTS HAVE BEEN MADE.

	ABBREVIATIONS.
Aide-Mémoire to the Military Sciences, framed from contributions of officers of the different services, and edited by a Committee of the Corps of Royal Engineers, 1845 to 1852	*Aide-Mémoire.*
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Le General Baron Joachim Ambert. Etudes Tactiques, pour l'instruction dans les camps. 1re série. Paris, 1865	*Ambert.*
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Commission des Conférences Régimentaires. Paris, 1869. Armement Nouveau. Considerations Générales, M. Maldan, chef d'escadron d'artillerie	*Maldan.*
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Sur le rôle de la Fortification Passagère, dans les combats. M. Prevost, chef de bataillon du génie	*Prevost.*
Sur la tactique de l'infanterie Prussienne, pendant la Campagne de 1866. M. Heintz, chef de batallion, au 3e Régiment de Voltigeurs de la Garde Imperiale	*Heintz.*
Sur l'artillerie de Campagne, son emploi, dans la guerre d'Allemagne de 1866. M. Saunier, Lieut.-Colonel, du 11e d'artillerie	*Saunier.*
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THE
LESSONS OF WAR.

PART I.
INTRODUCTORY.

CHAPTER I.

SECTION I.

WAR AND ITS PROGRESS.

1. The Art of war consists of six distinct parts:—

1. Statesmanship in its relations to war.
2. Strategy, or the art of properly directing masses upon the theatre of war, either for defence or for invasion.
3. Grand Tactics.
4. Logistics, or the art of moving armies.
5. Engineering,—the attack and defence of fortifications.
6. Minor Tactics.

Familiarity with all these parts is not essential in order to be good infantry, cavalry, or artillery officer; but for a general, or for a staff officer, this knowledge is indispensable.[1]

2. The Military arts consist in the knowledge of the scientific or mechanical processes which regulate the details of action, and the employment of the proper means. Thus, strategy, tactics, artillery, fortifications, organisation, the administration of armies, are military arts which should be familiar to a general. Each art has its theory; but the talent to make use of it with advantage, demands frequent applications and an observant mind.[2]

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[1] Jomini.

[2] Marmont.

3. When a nation is without establishments and a military system, it is very difficult to organise an army.[1]

4. Although wars of opinion, national wars, and civil wars are sometimes confounded, they differ enough to require separate notice. Wars of opinion may be intestine, both intestine and foreign, and, lastly, (which, however is rare,) they may be foreign or exterior without being intestine or civil.

* * * *

In a military view these wars are fearful, since the invading force not only is met by the armies of the enemy, but is exposed to the attacks of an exasperated people. It may be said that the violence of one party will necessarily create support for the invaders by the formation of another and opposite one; but, if the exasperated party possesses all the public resources, the armies, the forts, the arsenals, and if it is supported by a large majority of the people, of what avail will be the support of the faction which possesses no such means? What service did one hundred thousand Vendeans and one hundred thousand Federalists do for the Coalition in 1793?

* * * *

In national wars the country should be occupied and subjugated, the fortified places besieged and reduced, and the armies destroyed; whereas in wars of opinion it is of less importance to subjugate the country; here great efforts should be made to gain the end speedily, without delaying for details, care being constantly taken to avoid any acts which might alarm the nation for its independence, or the integrity of its territory.[2]

5. The Peninsular war should be carefully studied, to learn all the obstacles which a general and his brave troops may encounter in the occupation or conquest of a country whose people are all in arms. What efforts of patience, courage, and resignation did it not cost the troops of Napoleon, Massena, Soult, Ney, and Suchet to sustain themselves for six years against three or four hundred thousand armed Spaniards and Portuguese, supported by the regular armies of Wellington, Beresford, Blake, La Romana, Cuesta, Castanos, Reding, and Ballasteros?[3]

6. General principles for the conduct of armies are not very numerous,

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[1] Napoleon. [2] Jomini, Chap. I., Art. 7. [3] *Ibid*, Article 8.

but their application gives rise to a great variety of combinations, which it is impossible to foresee and to lay down as rules.[1]

7. Various circumstances open an immense field to combinations; the greatest mind is incapable of embracing them all. Thus it happens that the greatest generals commit blunders; the best are those who commit the fewest. The more, however, we admit new elements into our calculations, the more we control events. A prudent foresight must embrace in its plans not only the probable, but the possible; and thus we have a proper guarantee against fortuitous risks. Thus it is that, in the day of reverses, we foresee and guard against great catastrophes. This foresight was one of the highest faculties of Napoleon in his prime. His adversaries being almost always without it, the results which he thereby obtained astonished the world.[2]

8. Some one indiscreetly asked Viscount Turenne, how he had lost the battle of Marienthal. "By my own fault," replied the Marshal; "but," added he, "when a man has committed no faults in war, he can only have made it a short time."[3]

9. The art of war made sensible progress under Turenne, Condé Marlborough, and Prince Eugène of Savoy; their campaigns were remarkable for hardy conceptions, rapidity of movements, and scientific manœuvres on the field of battle. But the administration of the armies was bad; the higher grades were purchased; elementary tactics were still in their infancy; manœuvres were dangerous, because they were only formed slowly and in disorder. Troops were only instructed in puerile exercises; the most able generals were obliged to struggle against a thousand difficulties, unknown at the present day, and always counteracted in their plans by the ridiculous means then in use for the moving of armies. Discipline was altogether lost sight of in the beginning of the eighteenth century; patronage filled the higher ranks; infants were often made colonels of regiments; and evils only went on increasing. On reading the works of Marshal Saxe, one can hardly believe the picture of the disorders then existing among the troops. Count Drummond de Melfort says, that, before the war of 1740, the tenth part of French cavalry officers could not even ride; that ignorance prevailed in every branch of the service; that nothing was more rare than to see a

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[1] Marmont. [2] *Ibid.* [3] Sir G. C. D'Aguilar.

regiment mount for exercise; and that a colonel would have incurred the displeasure of his officers, and been cried down throughout the army, had he ventured to make them do so. It was but a natural result of the actual state of things: captains were the proprietors and furnishers of their troops; and, consequently, disliked those duties which might damage their equipments. In England these matters were, if anything, worse; and its history furnishes us with a curious example of a Maid of Honour commanding a troop of cavalry—the beautiful Mary Lepell, who, in 1720, married John, Lord Hervey of Ickworth. But Frederick of Prussia appeared, and, with him, a new system. Inheriting, in 1740, a well organised army, into which Leopold, Prince of Anhalt, had introduced regularity of step and the use of iron ramrods (things unknown elsewhere), as well as reduced to three ranks the formation of the infantry, Frederick, endowed with a genius for war and with an iron will, caused the science of tactics to advance with a gigantic step. Assisted by Saldern, Gandi, Ziethen, and the bold Seidlitz, the first cavalry officer of his day, he gave to his manœuvres a precision and a rapidity till then unknown. A column deployed, and an army was formed in line of battle, in a few moments. Under a new system of warfare, of which he was thus the originator, he astonished his enemies by the rapidity and order of his marches, the impetuosity of his attacks, and the steadiness of his infantry fire.[1]

10. The Prussian exercise, the manœuvres, all the minutiæ, and the severity of Frederick's army, were imitated, and more or less closely copied throughout Europe, without regard to the national character of each country, and its system of recruiting.[2]

11. Until the year 1794, tactics had made but little progress in the British army. After the time of Marlborough, Germany was the principal school for English officers; but, satisfied with the glory acquired in their campaigns, they seldom looked into the minutiæ of tactics; besides, the regiments with which they had served were usually disbanded on their return to England; the few that were retained for home service being to a certain degree the properties of their colonels, and dependent on them, not only for the style of their accoutrements, but also, the system of manœuvres. The results, however, of the campaign to Holland in

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[1] Jervis.

[2] *Ibid.*

1794, drew the serious attention of the Duke of York to the subject. Numerous abuses were reformed, and in 1798, Sir David Dundas caused a regular system of infantry evolution to be adopted throughout the army. The late General Sir William Congreve, ably assisted by the Marquis of Townsend, the then Master General, not only introduced most of Gribauval's improvements of artillery, but caused both officers and men to undergo a proper course of instruction.[1]

12. The nature and use of Field Artillery during the civil wars of Charles 1st, is a subject that has seldom attracted the attention of military writers, and it has generally been disposed of in a single sentence by those who have chanced to notice it. Yet it is a subject to which great interest is attached, for to these civil wars may be traced the origin and rise of Field Artillery, properly so called, in England; and the chrysalis bears no closer connexion to the butterfly than the Artillery of the Great Rebellion to the Royal Regiment of Artillery. * * * * * Clouds and darkness envelop the birth and infancy of a corps whose history stretches back into the dim twilight of the 14th century, but although it may be true that the yeomen of the guard, hitherto regarded as the most ancient military body in England, were formed by Henry 7th in 1485, it is no less true that we find traces of a standing force of artillery even at this remote period,—"a kind of regular troops, chiefly accustomed to the use of artillery, * * * maintained at the very few places where it was thought necessary or practicable to keep up the show of defence."[2]

13. The operations of the Archduke Charles, in 1796, opposing the French armies of the Sambre-et-Meuse, and of the Rhine, are the first example of operations combined systematically on a vast scale; we cannot meditate too carefully upon the work of this prince, in which his principles are established, with the demonstration of his operations and the motives which directed them. All the great principles of war are there deduced, at the same time that they find their application in the facts which are there set forth.[3]

14. Correct theories, founded upon right principles, sustained by actual events of wars, and added to accurate military history, will form a

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[1] Jervis. ([2] Hallam's Constitutional History of England.) H.W.L.H.
[3] Marmont.

true school of instruction for generals. If these means do not produce great men, they will at least produce generals of sufficient skill to take rank next after the natural masters of the art of war.[1]

15. Of all things which contribute most directly and effectually to the success of a military undertaking, *preparation* holds the first place. Without doubt the genius of the man who conducts the war, may sometimes rule its events, but this only in a certain measure and for a limited time. And history tells us that the greatest military geniuses of the world, Cæsar, and the emperor Napoleon, to wit, who had so many grounds for trusting alike in their inspirations and their fortune, did not disdain preparation, on the contrary that they applied themselves entirely to it, and made a thorough study of it as a science, from which they hoped great things.[2]

16. The good fortune and advantage of Prussia in 1866, as well as in the time of Frederick the Great, lay in having foreseen the evolution of ways and means in modern warfare, in having studied most attentively its details during a long peace, in having for the most part realized them, and in having opportunely and resolutely made use of the knowledge they had gained. In fact, it is difficult to imagine any efforts better directed, or followed up, than those which Prussia has devoted, ever since the wars of the first Empire, *to the preparation of its army.* This preparation, up to the year 1860, seemed to have no other object than to effect general improvements by research, and by the study of interesting facts, revealed by contemporaneous wars, and also by making use of any kind of inventions which suggested themselves, for the adoption of armies. The most successful and fruitful of the results obtained, was certainly the equipment of the infantry, which was brought as far as regards rapidity of fire,—to a degree of perfection which the other military powers of Europe, never dreamt of adopting until fifteen years later. * * *[3]

17. * * * The history of all people, who have understood the greatness of military institutions, and their influence on the march of civilisation, testifies to the importance which they attached to the education of their armies. They bestowed all their attention to developing at home, those aspirations, sentiments and principles which

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[1] Jomini.

[2] Trochu.

[3] *Ibid.*

give birth to that moral force which enables one to venture on anything. It is impossible to explain the wonderful enterprises of the small armies of Alexander and Cæsar, otherwise than by the high degree of perfection, which they had attained, in this respect. It is known, that these great commanders would never have conducted their soldiers to battle, without first exciting their minds by the idea of the struggles and sacrifices, of which victory must be the reward. "Toutes les fois,"—says Montaigne, in speaking of Cæsar, for whom he has the greatest and most sincere admiration,—"*qu 'il veut montrer avoir esté surpris ou presse, il allègue qu 'il n'eut pas seulement le loisir d'exhorter ses gens. De vray, sa langue lui a faict enplusieurs lieux de notables services.*"[1]

18. In order to obtain, for the Army, *the greatest advantage* from Camps of Instruction, it is necessary to enlarge, the *sphere of knowledge of the Officer;* to allow him to follow with profit to himself not only the manœuvres of his own, but those of other Arms as well. In a word, to accustom, to movements on a large scale, his eyes and mind hitherto restricted to observing details. As three persons called upon to attain the same end, to accomplish the same enterprise, meet to communicate what each knows and can do, so the three arms should meet in the Camps to learn how to act in concert and to understand each other, that perfect accord may reign during every enterprise in war. By means of well organised association, how many apparently insoluble problems have been solved in the arts and manufactures!! The surest method of enlarging the *sphere of knowledge of an Officer*, making him thoroughly understand the association of the different arms, would be to promulgate all the movements to be executed, each day and at each manœuvre, by the several arms, as also the reason for and objections to such movements. It would be more logical to carry out in Camps, manœuvres analagous to those which have actually taken place on the battle field, than to have recourse to suppositional ones. This reproduction of historical facts, would be of assistance when placed at the disposal of an officer; the only means by which he can perfectly call to mind, what he may have seen carried out in camp. Lastly, when instruction should appear to have advanced sufficiently, imaginary manœuvres could be introduced. Each Officer, could then reason and compare them, taking as guides those given in History.[2]

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[1] Trochu. [2] Ambert.

19. The adoption of the best regulations for the organisation of an army would be in vain if the government did not at the same time cultivate a military spirit in its citizens. It may well be the case in London, situated on an island and protected from invasion by its immense fleets, that the title of a rich banker should be preferred to a military decoration; but a continental nation imbued with the sentiments and habits of the tradesmen of London or the bankers of Paris, would sooner or later fall a prey to its neighbours. It was to the union of the civic virtues and military spirit fostered by their institutions that the Romans were indebted for their grandeur; and when they lost these virtues, and when, no longer regarding the military service as an honor as well as a duty, they relinquished it to mercenary Goths and Gauls, the fall of the empire became inevitable. It is doubtless true, that whatever increases the prosperity of the country, should be neither neglected nor despised; it is also necessary to honor the branches of industry which are the first instruments of this prosperity; but they should always be secondary to the great institutions which make up the strength of states in encouraging the cultivation of the manly and heroic virtues. Policy and justice both agree on this point; for, whatever Boileau may say, it is certainly more glorious to confront death in the footsteps of the Cæsars, than to fatten upon the public miseries by gambling on the vicissitudes of the national credit. Misfortune will certainly fall upon the land, where the wealth of the taxgatherer or the greedy gambler in stocks stands, in public estimation above the uniform of the brave man who sacrifices his life, health, or fortune to the defence of his country.[1]

SECTION II.

THE COMMAND OF ARMIES.

1. In the campaign of 1813, in Saxony, after the attack of the 14th Corps, Marshal St. Cyr records that in a conversation he had with Napoleon, the latter said, "That he utterly denied the difficulties of the art of war, which he said were far from being understood. He added that if he ever had the time he would write a book in which he would

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[1] Jomini, Chap. II., Art. 15.

demonstrate the principles of the art, in so clear a manner, that they would be within the comprehension of every military man,—and so that war could be learnt precisely like any other science." "I told him," says the Marshal, "that it was greatly to be desired that the experience of such a man should not be lost to France;—but that, I had always doubted whether any one could undertake this work:—if, however, it was possible, no one had a greater right than *he* had to attempt it. I added that until now, it had seemed to me, that neither experience nor the longest practice was the best means of acquiring this science;—that of all the generals—friends or enemies—who had been at the head of the armies of Europe, during the long wars occasioned by the French Revolution, none seemed to me to have learnt much by experience,—that I did not even except himself from this number, as I always considered his first campaign in Italy to be his military *chef-d'œuvre*."—"He told me that I was right: and that considering the small means he then had at his disposal, *he* also regarded it as his finest campaign:—that he had himself known only one general who had uninterruptedly learnt by experience, and that this general was Turenne, whose great talents were the fruit of the deepest study, and who had approached nearest to the end which he himself proposed to demonstrate, if he ever found time to write the work of which he had just spoken."[1]

2. "Turenne" himself thought that the art of war is learnt more from books than upon battle fields. This is also the opinion of "Napoleon." "Alexander," he says, "made 8 campaigns; Hannibal 17, 1 in Spain, 15 in Italy and 1 in Africa; Cæsar 13, of which 8 were against the Gauls and 5 against the legions of Pompey; Gustavus Adolphus 3; Turenne 18; Prince Eugène of Savoy 13; Frederick 11, in Bohemia, Silesia and on the banks of the Elbe. The history of these eighty-four campaigns, written with care, would be a complete treatise upon the art of war. From this source, the principles which ought to be followed, in offensive as well as defensive warfare, could at once be obtained." Napoleon, in another part of his memoir, complains that his officers had not time to acquire the knowledge in which they were deficient. "They only know," said he, "how to fight upon the highways and at cannon-range, while their field of

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[1] St. Cyr.

battle should embrace the entire country." Great captains thus admit that the best developed capacity and experience of war, are not sufficient to qualify officers for high commands; a thorough examination of the best authorities is also requisite; a knowledge which cannot be altogether acquired upon the field of battle, but which is obtained by thought and study. All who have conducted war, upon a large scale, avow that there is no such thing as *inspiration* in War. What is called *inspiration* is nothing but the result of calculations quickly made, such being the result of (cabinet) study or experience.[1]

3. If it be true, as we believe all history shows, that the power of strategical combination, and of mastering thoroughly the proportionate difficulties of each part of a large theatre of war, are the gift of a far-seeing genius alone, it is no less certain that a high order of ability is requisite for what some writers have not scrupled to treat as a merely mechanical part of warfare, the successful handling of a large body of troops in actual conflict. But between these two accomplishments there appears to be one essential difference. Practice can form or improve vastly a tactician, whilst it can do but little to supply the natural want of strategical power. Assuming from the general verdict of military writers that in Napoleon is to be found the highest example of this latter gift, we have only to compare carefully his campaigns, the objects achieved, and the resources with which he set out, to discover that no part of his career is so brilliant as that early one * when he entered Italy an almost unknown general of the Directory. Not only did he fail to improve in his later years, but (in the words of Marmont) at the period of the Russian invasion, "he had commenced to exhibit a marked preference for direct attacks, for the employment of sheer strength, and a certain contempt for the assistance of art and combinations requiring mental effort. He gained the victory, but at the cost of immense losses, and with insignificant advantage."[2]

4. A general thoroughly instructed in the theory of war, but not possessed of military *coup-d'œil*, coolness, and skill, may make an excellent strategic plan and be entirely unable to apply the rules of tactics in presence of an enemy: his projects will not be successfully carried out, and his defeat will be probable. If he be a man of character, he will be

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[1] Ambert [2] Edinburgh Review.

able to diminish the evil results of his failure, but if he lose his wits he will lose his army. The same general may, on the other hand, be at once a good tactician and strategist, and have made all the arrangements for gaining a victory that his means will permit: in this case, if he be only moderately seconded by his troops and subordinate officers, he will probably gain a decided victory. If, however, his troops have neither discipline nor courage, and his subordinate officers envy and deceive him, he will undoubtedly see his fine hopes fade away, and his admirable combinations can only have the effect of diminishing the disasters of an almost unavoidable defeat.[1]

5. Generals in chief must be guided by their own experience or their genius. Tactics, evolutions, the duties and knowledge of an engineer officer, may be learned in treatises, but the science of strategy is only to be acquired by experience, and by studying the campaigns of all the great captains. Gustavus Adolphus, Turenne, and Frederick, as well as Alexander, Hannibal, and Cæsar, have all acted upon the same principles. These have been—to keep their forces united; to leave no weak part unguarded; to seize, with rapidity, on important points. Such are the principles which lead to victory, and which, by inspiring terror at the reputation of your arms, will at once maintain fidelity and secure subjection.[2]

6. A great captain, can only be formed, says the Archduke Charles, by long experience and intense study. Neither is his own experience enough; for whose life is there sufficiently fruitful of events to render his knowledge universal? It is, therefore, by augmenting his information from the stock of others, by appreciating justly the discoveries of his predecessors, and by taking for his standard of comparison those great military exploits, in connection with their political results, in which the history of war abounds, that he can alone become a great commander.[3]

7. In the first place a campaign, or movement, or action, may be regarded as exemplifying some general theory. Correctness is, of course, as much an object here as in treating these subjects with any other view; but the conduct of individuals matters little, except in so far as it harmonises with or violates certain rules. The actors in this case are regarded simply as instruments, more or less imperfect, for carrying out certain

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[1] Jomini. [2] Napoleon. [3] Sir G. C. D'Aguilar.

designs, and are made subordinate in importance to the principles which it is the object to establish or to illustrate. This is that theoretical use of military history which has often met hot opposition, and which may easily become an abuse in the hands of those who mistake men for machines, and overlook the realities of war in their haste to reduce its combinations to geometrical rules. On the other hand we have the distinct assurance of great commanders that professional study in some form is the first condition of practical success. Napoleon laid this down as an especial rule. The Archduke Charles practised it in his own person before taking a command in chief. Wellington reticent to his own friends and lieutenants, was found ready in the midst of Peninsular triumphs, to discuss strategical questions with a young officer of his army when he could find one worthy of his confidence; and on another occasion, at the close of his last great campaign, confessed to a junior staff officer his personal obligation to daily study. The military, in fact, can never be an exception to that rule of other professions, which requires in their most brilliant ornaments something more than the rough practical knowledge which every useful member must possess. The day is gone by when great nations will look to see heaven-born generals appear at the first call to lead their armies.[1]

8. The first qualification in a general in chief is, a cool head—that is, a head which receives just impressions, and estimates things and objects at their real value. He must not allow himself to be elated by good news, or depressed by bad. The impressions he receives, either successively or simultaneously, in the course of the day, should be so classed as to take up only the exact place in his mind which they deserve to occupy; since it is upon a just comparison and consideration of the weight due to different impressions, that the power of reasoning and of right judgment depends. Some men are so physically and morally constituted, as to see everything through a highly coloured medium. They raise up a picture in the mind on every slight occasion, and give to every trivial occurrence a dramatic interest. But, whatever knowledge, or talent, or courage, or other good qualities such men may possess, nature has not formed them for the command of armies, or the direction of great military operations.[2]

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[1] C. C. Chesney, Lecture I.

[2] Napoleon.

9. The entire *morale* of war, for the general, consists in knowing the motions of the spirit which animates soldiers; in the rectitude of the judgments he forms, and of the application he makes of them, in the varied chances of war, as well of his own troops as of those which he has fought and is going to fight. These constitute an independent faculty in the profession of arms; nothing less than an appanage of genius. All great generals have possessed it, and never did any man in the world have it in a higher degree than Napoleon. Discipline, the auxiliary of courage, is necessary also as a means of order. We may perceive its entire importance by reflecting upon the mechanism of an army, and by asking ourselves how such a multitude can subsist in motion as at rest. It is not sufficient to assemble men in greater or less numbers to constitute an army. They must then be organised.[1]

10. A command, however extensive, cannot, when made subordinate, be at all compared with the chief command, however the latter may be restrained by the number of troops; for there is no longer the necessity of overcoming that great difficulty, * * which consists in resolution. I commanded, under Napoleon, armies of different strength and *corps d'armée*. Ten thousand men only, given up to the combinations of a single chief, present incomparably more embarrassment, and give rise to more solicitude, than the command of fifty thousand, forming a subordinate part of an army of two hundred thousand. In the latter case, to move, march, and fight, according to given orders and with a specified design, are easy things: and when the fight or the marches are terminated, when the camp is established, the general rests himself, like the lowest soldier, waiting for orders: at this very moment, on the contrary the commander-in-chief is most a prey to disquietude, and must exercise every kind of foresight.[2]

11. A *mediocre* mind is not to be found in any of the great generals of antiquity or of modern times, in any of the great historic names which march through the centuries above their fellows. Alexander, Hannibal, Scipio, Cæsar, possessed the highest faculties of intellect. It was the same with the great Condé, Luxembourg, the great Eugène, Frederick and Napoleon. But all these great men, to a superior mind, added still more strength of character.[3]

12. The most essential qualities for a general, will always be as fol-

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[1] Marmont. [2] *Ibid.* [3] *Ibid.*

lows:—First, *A high moral courage, capable of great resolutions*; Secondly, *A physical courage which takes no account of danger*. His scientific or military acquirements are secondary to the above mentioned characteristics, though if great they will be valuable auxiliaries. It is not necessary that he should be a man of vast erudition. His knowledge may be limited, but it should be thorough, and he should be perfectly grounded in the principles at the base of the art of war. Next in importance come the qualities of his personal character. A man who is gallant, just, firm, upright, capable of esteeming merit in others instead of being jealous of it, and skilful in making this merit conduce to his own glory, will always be a good general, and may even pass for a great man. Unfortunately, the disposition to do justice to merit in others, is not the most common quality: mediocre minds are always jealous, and inclined to surround themselves with persons of little ability, fearing the reputation of being led and not realising that the nominal commander of an army always receives almost all the glory of its success, even when least entitled to it. The question has often been discussed, whether it is preferable to assign to the command a general of long experience in service with troops, or an officer of the staff, having generally but little experience in the management of troops. It is beyond question that war is a distinct science of itself, and that it is quite possible to be able to combine operations skilfully without ever having led a regiment against an enemy. Peter the Great, Condé, Frederick, and Napoleon are instances of it. It cannot, then, be denied, that an officer from the staff may as well as any other prove to be a great general, but it will not be because he has grown grey in the duties of a Quarter-Master that he will be capable of the supreme command, but because he has a natural genius for war and possesses the requisite characteristics. So, also, a general from the ranks of the infantry or cavalry may be as capable of conducting a campaign as the most profound tactician. So this question does not admit of a definite answer either in the affirmative or negative, since almost all will depend upon the personal qualities of the individuals; but the following remarks will be useful in leading to a rational conclusion:—

(1) A general, selected from the general staff, engineers, or artillery, who has commanded a division or a corps d'armée, will, with equal chances, be superior to one who is familiar with the service of but one arm or special corps.

(2) A general from the line, who has made a study of the science of war, will be equally fitted for the command.

(3) That the character of the man is above all other requisites in a commander in chief.

Finally. He will be a good general in whom are found united the requisite personal characteristics, and a thorough knowledge of the principles of the art of war.[1]

13. If to constitute a great general, great intelligence is needed, still more is character requisite. It is character which presides at the execution of plans. It is character which, in both ancient and modern times, has caused generals of the first class to shine.[2]

14. Of all human events, those connected with war demand more, doubtless of the concurrence of that aid which is called experience. The soldier must become accustomed to danger, to that physiognomy of battles which presents so many different phenomena. The man born brave, will be able at the outset to expose himself to danger without fear and suffering; sometimes even with pleasure; but it is only by the lapse of time, that he will acquire the faculty of discriminating how he will be able to make, by offering his life as a sacrifice, the best possible use of it.[3]

15. * * * * The Archduke Charles, formed his reputation as a strategist on emerging from his study, where he had spent many months pursuing the theory of war, even after he had previously served in three campaigns. It seems, then, that the great question for a soldier is, not whether to study, but what to study; for in these busy days few could find time to add Napoleon's own campaign and all the later wars to the eighty-four campaigns recommended by the Emperor. Marshal Marmont partly cuts the knot when he says, in his preface to the "Spirit of Military Institutions," "That warfare, as it now exists, constitutes a new art, which would desire neither model nor lesson from the wars of the Greeks and Romans." And we may go further and say, that the art of strategy received such marvellous development, if, indeed, it was not almost created, in the wars of Napoleon, that the student whose time is limited had better confine himself to these, and to the wars that have since taken place.[4]

16. All great generals have been dilligent students of maps, and have

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[1] Jomini, Chap. II., Art. 14. [2] Marmont. [3] *Ibid.* [4] Saint Pauls Mag.

made themselves masters, either personally or by the reconnaissances of their officers, of every feature of the country in which they were acting. Ignorance as to the course or nature of a river, the position of a mountain pass, the condition of a road, the existence of a bridge, the capacities of a town, or the strength of a position, has many a time been fatal to the success of an army; and woe to the general who does not use every means in his power to make himself thoroughly acquainted with the geography of the field of his operations.[1]

17. In one of the numerous visits which the Duke of Wellington necessarily paid to Calais, on his way from France to England, during the continuance of the Army of Occupation in France, when walking from the Hotel Dessin to the pier to embark; he said to Sir James Shaw Kennedy that he had always made it a rule to study by himself for some hours every day; and, alluded to his having commenced upon this rule before he went to India, and of his having continued to act upon it.[2]

18. No doubt fortune enters largely into the events of war, but, whatever certain authors may say to the contrary, no human being ever trusted less to accident than the Duke of Wellington. He was of opinion that, in war as in everything else, success depends much more upon the steady observance of rules than upon momentary inspiration, or the exceptional concurrence of favourable circumstances. Again, though deficient neither in determination nor in audacity, and though his natural temperament impelled him to hazardous enterprise, his reason led him to give the preference to means more slow perhaps, but, as experience demonstrated, more certain in their issues. He calculated with rare sagacity the probable result of his own strategical operations, and did not make up his mind to execute them till he saw reason to count, his own genius aiding him, on a successful event. This prudence has caused several French authors to allege that Wellington was deficient in enterprise, and that he endeavoured to make amends for the want of a natural genius for command, by an excess of precaution unworthy of a true warrior. * * *[3]

19. Peruse again and again the campaigns of Alexander, Hannibal, Cæsar, Gustavus Adolphus, Turenne, Eugène, and Frederick. Model

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[1] Walker. [2] Kennedy. [3] Gleig.

yourself upon them. This is the only means of becoming a great captain, and of acquiring the secret of the art of war. Your own genius will be enlightened and improved by this study, and you will learn to reject all maxims foreign to the principles of these great commanders.[1]

20. Let us imagine that an army in the field is commanded by a general who has fought his way upward from grade to grade, who is valiant, devoted, and practised in war. He is versed in all routine duties, knows the uses and capabilities of the different arms, can choose and occupy a position, make the dispositions for the march of his columns, stubbornly cover a retreat, and save his army, even after a heavy disaster. But not having a mind capable of comprehensive views, or of deep study, he knows nothing of great combinations. Strategy, in the sense of a flexible science, to be adapted to circumstances, is a sealed book to him: the theatre of war is written in a cipher to which he has not the key; he can deal with the accidents of the country, when they present themselves, as something to be immediately attacked or defended; but they suggest no large problems by the solution of which a few marches decide a campaign. Cautious, from not knowing when he may venture to be bold, and rash from ignorance of what may be attempted against him, he spoils his offensive movements by hesitation, defends himself by makeshifts, and only half understands his own blunders when they have ruined his army. This is no unfair picture of what has often passed muster in the world as a respectable leader to be entrusted with the fate of hosts. It would do no injustice to some of Napoleon's most celebrated marshals. Such a one will probably acquit himself with credit so long as he is opposed by no qualities superior to his own.[2]

21. Nothing is so important in war, as an undivided command; for this reason, when war is carried on against a single power, there should be only one army, acting upon one base, and commanded by one chief.[3]

22. The first security for success is to confer the command on one individual. When the authority is divided, opinions are divided likewise; and the operations are deprived of that *ensemble* which is the first essential to victory. Besides, when an enterprise is common to many, and not confined to a single person, it is conducted without vigour, and less interest is attached to the result.[4]

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[1] Napoleon. [2] Hamley, p. 437. [3] Napoleon. [4] Montecuculi.

23. Jomini, at the conclusion of his summary of the Art of War, makes the following pithy observation:—"If a few prejudiced military men, after reading this book and carefully studying the detailed and correct history of the campaigns of the great masters of the art of war, still contend that it has neither principles or rules, I can only pity them, and reply, in the famous words of Frederick, that 'a mule which had made twenty campaigns under Prince Eugène, would not be a better tactician than at the beginning.'"

24. * * Supreme genius itself may fail to solve every problem, as Napoleon's unsuccessful strategy in 1812 and 1813 plainly shows to the unprejudiced observer. In short, it may be held as certain, that with advancing civilisation, increased wealth, more rapid and certain communication, strategy will enlarge its sphere and become bolder and more decisive, as it will also make larger demands upon the intellect of the chief. Steam, railroads, and commerce increase the advantage which superiority of conception always claimed; just as the growth of Europe in agricultural wealth, and the improvement of her highways enabled Napoleon and his contemporaries to use a strategy which to Frederick and Marlborough seemed too bold, or was only applied by them in countries perfectly friendly, open, and well tilled beyond the custom of their time.[1]

25. A general-in-chief has no right to shelter his mistakes in war, under cover of his sovereign, or of a minister, when these are both distant from the scene of operation, and must consequently be either ill informed, or wholly ignorant, of the actual state of things. Hence it follows that every general is culpable who undertakes the execution of a plan which he considers faulty. It is his duty to represent his reasons, to insist upon a change of plan, in short to give in his resignation, rather than allow himself to be made the instrument of his army's ruin. Every general-in-chief who fights a battle in consequence of superior orders, with the certainty of losing it, is equally culpable. In this last-mentioned case the general ought to refuse obedience; because a blind obedience is due only to a military command given by a superior present on the spot at the moment of action. Being in possession of the real state of things, the superior has it then in his power to afford the necessary explanations to the person who executes his orders. But supposing

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[1] Edinburgh Review.

a general-in-chief to receive a positive order from his sovereign, directing him to fight a battle, with the further injunction to yield to his adversary, and allow himself to be defeated; ought he to obey it? No. If the general should be able to comprehend the meaning or utility of such an order, he should execute it; otherwise he should refuse to obey it.[1]

26. At the present time the importance of wars has become a vital question to states; placing on foot all the forces of empires, cannot be considered in a purely military light, or a duel between two armies. War should be but the continuation of politics, the most advantageous for the interests of the state, with the last and strongest means at its disposal; with this view, military operations should be conducted, and the general-in-chief should be kept fully informed of all political matters, be honored with the full confidence of the sovereign, and be constantly during the war in possession of all relating to politics and diplomatic transactions. It is for the general-in-chief as well as for the minister who directs the policy, an obligation to preserve between them the best understanding: the latter would incur a heavy responsibility if he secluded himself, and if afterwards in order to carry out his plans, he sought impossibilities from the general-in-chief, and from the army. But the gravest responsibility falls upon ministers, who at the commencement of and during the preparations for war keep the general-in-chief uninformed; or who unknown to him, make arrangements or engagements to be executed afterwards by the army. The action of the general-in-chief becomes in a great manner paralysed, if he is at the last moment made acquainted with the previous arrangements, or if not at all. The best plan of operations can become ineffective; as the state of the preparations usually contains the germ of victory or defeat.[2]

SECTION III.

COUNCILS OF WAR.

1. The same consequences which have uniformly attended long discussions and councils of war, will follow at all times. They will terminate in the adoption of the worst course, which in war is always

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[1] Napoleon.

[2] Archduke.

the most timid; or if you will, the most prudent. The only true wisdom in a general is determined courage.[1]

2. Prince Eugène used to say, that councils of war are only useful when you want an excuse for attempting nothing. This was also the opinion of Marshal Villars. A general in chief should avoid, therefore, assembling a council on occasions of difficulty, and should confine himself to consulting, separately, his most experienced generals, in order to benefit by their advice; while he is governed, at the same time, in his decision by his own judgment. By this means he becomes responsible, it is true, for the measures he pursues; but he has the advantage also of acting upon his own conviction, and of being certain that the secret of his operations will not be divulged, as is usually the case when it is discussed by a council of war.[2]

3. In war, the general alone can judge of certain arrangements. It depends on him alone to conquer difficulties, by his own superior talents and resolution.[3]

4. In my opinion, 'remarks Jomini,' councils of war are a deplorable resource, and can be useful only when concurring in opinion with the commander, in which case they may give him more confidence in his own judgment, and, in addition, may assure him, that his lieutenants, being of his opinion, will use every means to insure the success of the movement. This is the only advantage of a council of war, which, moreover, should be simply consultative and have no further authority; but, if, instead of this harmony there should be difference of opinion, it can only produce unfortunate results. Accordingly, I think it safe to conclude that the best means of organising the command of an army, in default of a general approved by experience, is—

Hitherto it has been the idea, that an eminent man as chief of the staff or as Adlatus, was a sufficient remedy for the short comings of the general selected for the command of the army,—that in this manner, want of experience in war, deficient knowledge and weakness of character, &c., could be compensated for; but bitter disappointment has resulted from such experiments. The reason for repeating them so often, requires explanation. As nobody is perfect, and as in men of resolute character imperfections are more strongly marked; it is desirable and often even necessary that the persons of influence who are about should not by the similarity of their characters contribute to a further increase of the imperfections, and that therefore the general and his assistants, should by opposite qualities compensate for their respective failings. This principle is correct enough, if it is maintained as a fundamental principle, that the general-in-chief is quite

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[1] Napoleon. [2] Sir G. C. D'Aguilar. [3] Napoleon.

1st. To give the command to a man of tried bravery, bold in the fight, and unshaken firmness in danger.

2nd. To assign, as his chief of staff, a man of high ability, of open and faithful character, between whom and the commander there should be perfect harmony. The victor will gain so much glory that he can spare some to the friend who has contributed to his success. In this way Blücher, aided by Gneisenau and Müffling, gained glory which probably he would not have been able to do of himself. It is true that this double command is more objectionable than an undivided one when a state has a Napoleon, a Frederick, or a Suwaroff to fill it; but when there is no great general to lead the armies, it is certainly the preferable system.[1]

5. We may be confident, that a good strategist will make a good chief of staff for an army, but for the command in chief is required a man of tried qualities, of high character and known energy. The united action of two such men as commander in chief and chief of staff, when a great captain of the first order cannot be had, may produce the most brilliant results.[2]

6. Self-reliance, and readiness of resource—presence of mind in fact—are qualities which every general should possess. Without the former he will frequently hesitate between opposite courses recommended to him by others, and will either allow the opportunity to pass, or perhaps, in defiance of his own better judgment, adopt plans unduly forced upon him. We seldom hear of Napoleon even summoning a council of war, and in the notable instance in which he did so (at Lesegno in 1796,) we find, that although he heard the opinions of his officers, he had already determined upon his own course, which he pursued, and merely used his council as a means of impressing upon his troops

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fitted for his difficult position, or at least possesses the most important qualities; but this has often been otherwise understood, as if the commander of an army in default of the necessary qualities of a general-in-chief, could have these deficiences replaced by the talents of an assistant; and it was there where the dangerous error lay. As proofs to the contrary, the names of Radetzky, and Hess, Blucher and Gneisenau, were often mentioned. It is forgotten, that the first was a general-in-chief in the full sense of the word; that in 1848–49 he was more than 80 years of age, and for that reason required special aid, both in a physical and moral point of view; and that so noble a man, so ready to forget himself, so devoted and modest, so thoroughly competent in every way to fill such a position, as General Hess, was necessary. Blücher, who was during the war with France, younger and stronger than Radetzky was in 1848, had

[1] Jomini, Chap. II., Art. 14. [2] Jomini.

his own determination and the reason for it. As to presence of mind, the necessity for this virtue must occur many times in every campaign, and in every battle.[1]

7. Let us add, a few personal qualities which every great general must possess. He must be silent and secret, able to keep his own counsel and that of his allies, never unnecessarily divulging *to any one*, under circumstances of any provocation, the plans which he has formed. Of such secrecy Marlborough showed a good example, when pressed by a council of war, and especially by Eugène, his valued friend and colleague, to adopt a plan of operation in every way suitable, he refused to do so and directed another incomparably inferior, nor would permit any taunt of cowardice from Eugène to make him change his determination, or explain the reason of it. He knew that a secretary present had been bribed by the enemy, and would divulge the plan, if not interfered with; he therefore announced a design, knowing it to be indifferent and never intending to adopt it, and when the traitor had conveyed the intelligence to the enemy, Marlborough caused him to be arrested, altered his plans, nor till then divulged his reasons to his admiring colleague, and next day gained great success by manœuvres, against which the enemy from bad intelligence had neglected to provide.[2]

8. It is certainly of great importance for a general to keep his plans secret; and Frederick the Great was right when he said, that if his night cap knew what was in his head, he would throw it into the fire. That kind of secrecy was practicable in Frederick's time, when his whole army was kept closely about him; but when manœuvres of the vastness of Napoleon's are executed, and war is waged as in our day, what concert of action can be expected from generals who are utterly ignorant of what is going on around them?[3]

not studied much; but had great experience in war, a correct judgment, considerable knowledge of men, great obstinacy and an iron will, which never yielded to any obstacle. He was much more than a good "sabreur" and he found full compensation in his assistant Gneisenau, as distinguished as modest. Both Radetzky and Blücher commanded armies consisting of professional soldiers, and their generals were either brought up under them or old companions in arms, circumstances which went far in assisting successfully so exceptional a position. On the other hand there is not the slightest doubt, that these celebrated chiefs of the staff would not have been able to make the full use of their brilliant qualities, if in place of being by the side of highly gifted generals, they had been associated with incapable men liable to miserable and unjust influences, or without character or moral authority.—ARCHDUKE.

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[1] Walker. [2] *Ibid.* [3] Jomini.

PART II.

STRATEGY.

The earnest student is then in this dilemma, that he requires a knowledge of theory to understand the facts, and a knowledge of facts to understand the theory. The only mode of extrication would appear to be, to read military history until he can form theories for himself. But what a task is this for one to enter on who does not yet know what it is that he wants to know! When the works of single military authors extend over a dozen volumes, where shall he begin to enter on the trackless expanse before him? And it must be remembered that the reading is a small part of the labour compared with the exertion of thought necessary to perceive and generalise the significant facts.

COLONEL HAMLEY'S OPERATIONS OF WAR.

CHAPTER I.

SECTION I.

AIM AND PRINCIPLES.

1. Strategy, is the art of bringing the greatest part of the forces of an army upon the important point of the theatre of war or of the zone of operations.[1]

2. Marmont, thus defines it; "strategy has a double purpose:"—"1st. To unite all the troops, or the greatest number possible, on the field of action, when the enemy has only a portion of his own there; in other words, to secure a superiority of numbers for the day of battle."

2nd. "To cover and secure our own communication, while threatening those of the enemy."

3. The distinction between strategy and tactics, is comparatively of modern date, but it is now thoroughly understood, and the two subjects are considered separately at all our military colleges. Strategy is the science of moving troops in the whole theatre of war. Tactics, the art of handling troops in the presence of the enemy. Strategy merges into tactics, on the field of battle.[2]

4. Strategy is the science of warfare; that is to say, it is the science by which a general is enabled to trace the plan of a campaign, deter-

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[1] Jomini. [2] St. Pauls Mag.

mine the positions which it is, absolutely necessary to be the master of in order to attain the aim proposed, and fix the direction in which the communications should be established.[1] Thus, when Marshal Turenne, in order to defeat the Imperialists, with greater certainty, allowed them to take up their winter quarters in Alsace, then, retiring into Lorraine by the defile of Petite-Pierre, secretly marched behind the Vosges mountains, and debouched suddenly through Befort into the midst of their cantonments, surprised them, defeated them at Turkheim, and forced them back across the Rhine, he left a fine example of strategical combinations.[2]

5. From strategy we learn to sketch our *plan of campaign;* to select our points of departure, or *bases;* to trace the general direction of our movements, or *line of operations,* and to carry on *war offensive or defensive* by means of *marches.*[3]

6. Napoleon possessed in an eminent degree a genius for strategy; no general has ever surpassed him in this respect; no one has been able better to discern, in advance, the point where he ought to strike.[4]

7. All wars should be governed by certain principles, for every war should have a definite object, and be conducted according to the rules of art. War should only be undertaken with forces proportioned to the obstacles to be overcome.[5]

8. A proper knowledge of the plan of a campaign requires the previous solution of all the problems of military art: thus, strategy is connected with several sciences. The general should be previously informed as to all political and geographical matters bearing upon the subject. Military geography is of vital importance, without its aid, the chief of an army may experience severe disappointments in the results of his calculations. * * The government of almost every European country has published excellent maps, which will remedy the deficiency of previous topographical knowledge.[6]

9. In comparing the campaigns of the great captains of past centuries with those of Frederick and Napoleon, it is plain that as the art of war progresses, strategy has been obliged to adopt less hazardous combinations, to contract and simplify its movements, in a word to act more cautiously. In the time of Hannibal, geography was little known and means of com-

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[1] Principes de Stratégie. [2] Jervis. [3] Lendy. [4] Marmont. [5] Napoleon. [6] Lendy.

munication were very imperfect; it was possible to cross whole provinces without meeting the enemy, and it was necessary to leave much to chance. This great commander passed from Africa into Spain, thence into Gaul, and from thence to Italy. He carried out, over an immense theatre, the most gigantic expedition that had ever taken place, if we take into account the difficulties surmounted. It was nevertheless crowned with success. The best campaigns of Napoleon, those in which he seems to have shewn the greatest genius, are those of 1796 and 1814. They took place, within a limited theatre, and their general movements approached in a manner to tactics. On the other hand, whenever he operated in too extensive a theatre, when he wished to carry out movements on a *gigantic* scale, he found that his calculations were uncertain, and that too much was left to chance. The genius was the same, but the machinery less manageable.[1]

10. In forming the plan of a campaign, it is requisite to foresee everything the enemy may do, and to be prepared with the necessary means to counteract it. Plans of campaign may be modified, *ad infinitum*, according to circumstances, the genius of the general, the character of the troops, and the features of the country.[2]

11. The two branches of the science of war,—'tactics and strategy'—are closely connected: a tactical error perhaps leads to the loss of strategical points and lines, and the most correct manœuvres, are rarely of permanent advantage, if not executed in accordance with the strategical positions and directions. When strategy and tactics are not in concord, that is to say, when strategical considerations are opposed to tactical, it is the rule to sacrifice the latter; as strategical points and lines being determined by the theatre of war, the general-in-chief must be guided by them; the tactician is able to find the means of improving an unfavourable position, by the disposition of his troops, by intrenchments or other ways.[3]

12. In the offensive, there are three descriptions of strategical points: the first is the base of operations, the line from which the commencement is made; the second is termed the objective and is determined by the object of the undertaking; the third is intermediate between these two. In the defensive these points are reversed: the first is to protect the country in rear, or the key of it; the second to delay the advance of the enemy, either by force or by manœuvring

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[1] Ambert. [2] Napoleon. [3] Archduke Charles.

to threaten his communications; the third has the same object as in offensive warfare. In every state, there are some important strategical points, the occupation of which give the control of the country and its resources. Most of these points are in the interior, at the junction of the chief communications, or at the point of passage of rivers, or at the intersection of the mountain chains which traverse the country. Usually a state, has not a great number of these points, frequently but one: then it is always decisive, wherever the war may come from, and with whoever it may be. Points which serve for less important operations are more numerous, they are for different purposes and they vary. One for example, assures the possession of an extent of country; another is useful for making demonstrations; another offers an advantageous position for gaining time; and another a favourable point for extending operations; &c.[1]

SECTION II.

BASE OF OPERATIONS.

1. A base of operations, is the surface of ground upon which an army collects its means of war, its magazines, provisions, depôts of recruits, &c. From this base it proceeds to execute a series of operations, but the army must always remain in immediate connection with it, in order that it may be used, if required, as a place of refuge.[2]

2. A base of operations—'as defined by Jomini,'—is the portion of country from which the army obtains its reinforcements and resources, from which it starts when it takes the offensive, to which it retreats when necessary, and by which it is supported when it takes position to cover the country defensively. The base of operations is most generally that of supply,—though not necessarily so, at least as far as food is concerned; as, for instance, a French army upon the Elbe might be subsisted from Westphalia or Franconia, but its real base would certainly be upon the Rhine.[3]

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[1] Archduke Charles. [2] Lendy. [3] Jomini, Chap. III., Art. 18.

3. The base of operations is formed by a series of points adjoining each other, in proximity to which are found all that is requisite for an army, and sufficient outlets for transport in different directions. It is then necessary, that the base as well as its communications with the army, should be at all times covered by the positions that are to be established, or by the movements to be carried out. A base ought to rest on many points, as it is both difficult and dangerous to collect all the supplies of an army in one depôt, and to have only a single direction for the transport. Placing some in advance and some in rear, there is more facility for manœuvres, when they are found distributed over many points, and when they can be obtained by various roads.[1]

4. When a frontier possesses good, natural, or artificial barriers, it may be alternately either an excellent base for offensive operations, or a line of defence when the state is invaded. In the latter case it will always be prudent to have a second base in rear; for, although an army in its own country will everywhere find a point of support, there is still a vast difference between those parts of the country without military positions and means, as forts, arsenals, and fortified depôts, and those other portions where these military resources are found; and these latter alone can be considered as safe bases of operations. An army may have in succession a number of bases: for instance, a French army in Germany will have the Rhine for its base; it may have others beyond this, wherever it has allies or permanent lines of defence; but if it is driven back across the Rhine it will have for a base either the Meuse or the Moselle: it might have a third upon the Seine, and a fourth upon the Loire. These successive bases may not be entirely or nearly parallel to the first. On the contrary, a total change of direction may become necessary. A French army repulsed beyond the Rhine might find a good base on Béfort or Besançon, on Mézieres or Sedan, as the Russian army after the evacuation of Moscow left the base on the north and east, and established itself upon the line of the Oka and the southern provinces. These lateral bases perpendicular to the front of defence are often decisive in preventing the enemy from penetrating to the heart of the country, or at least in rendering it impossible for him to maintain himself there. A base upon a broad and rapid river, both banks being held by strong

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[1] Archduke Charles.

works, would be as favourable as could be desired. The more extended the base, the more difficulty will there be in covering it; but it will also be more difficult to cut the army off from it. A state whose capital is too near the frontier cannot have so favourable a base in a defensive war as one whose capital is more retired.[1]

5. If one stronghold and many fortified points are situated upon the base, or a great river form a part of it, great advantages result. The more extended the base, the better is the line of operations covered. It was a fundamental axiom of Napoleon. It is never departed from with impunity. In his splendid campaigns of 1805, 1806, and 1809, he has presented great examples, and profited skilfully by the favourable circumstances which the direction of the French frontier gave him.[2]

6. It must, also, bear a proper ratio to the extent of the theatre of operations; for, if it include only fifty miles, when operations have to be carried on at a distance of a hundred and fifty, the different roads leading to the objective point are confined and almost confounded with each other, a circumstance which might easily lead to the army being separated from its base. It is in a suitable ratio, when the triangle formed by the base and the lines joining its extremities with the objective point, is equilateral. But the base being limited, its length cannot admit of distant objective points; and, on the other side, we cannot extend it indefinitely. It is generally, admitted that, when the objective point is a hundred leagues distant, the base cannot with safety be extended to the length which a due proportion to the other sides of the figure would require.[3]

7. The lateral extent of a base, without reference to its configuration, is also an important matter. Its affects the army that operates from it very considerably, whether the operation be offensive or defensive. For a very long base evidently supplies in some degree the place of a re-entering base. If an Austrian army were on the Neckar, a French army might move on its rear almost as easily from Mayence as from Wurzburg. And if the Austrian army were dependent on a very short base, it would be easily cut from it. But how difficult it was to cut it from its very long base, was shown by the perilous dispositions to which Napoleon was obliged to resort for the interception of Mack. * * * *
In the American war, the extent of the Federal base gave the northern

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[1] Jomini, Chap. III., Art. 18. [2] Marmont. [3] Lendy.

armies a great advantage. Not only had they a variety of lines of invasion to select from, but when defeated in Virginia, it was almost hopeless to attempt to intercept them. In 1862, Jackson's bold flanking movement cut Pope from the Upper Potomac, but could not prevent him from reaching Alexandria, and, if cut from Alexandria, he could still have retreated on Acquia and the flotilla. And, in 1863, when Grant was baffled on the line of the Rapidan, he shifted his base, as he moved round Lee's right, successively to the Pamunkey, and to the James. The extent of a base is, then, a very important consideration in deliberating on the expediency of adopting it; and the advantage it offers must be very marked in order to compensate for dependence on a single harbour, or narrow strip of frontier, where the army will be restricted to a single line, and that line precarious in proportion to its length. Therefore, when a maritime power, is based at first on a single harbour, as soon as its army, in advancing, masters a road which branches to another harbour distant from the first, that second harbour should be occupied and made part of the base. And in all cases, the depôts should extend behind the flanks of the army as widely as is consistent with their due protection by natural obstacles, by fortresses, or by the front of the army.[1]

8. * * * * Some have asserted, that a perfect base is one parallel to that of the enemy. My opinion is that bases perpendicular to those of the enemy, are more advantageous, particularly such as have two sides almost perpendicular to each other and form a re-entrant angle, thus affording a double base if required, and which, by giving the control of two sides of the strategic field, assure two lines of retreat widely apart, and facilitate any change of the line of operations which an unforeseen turn of affairs may necessitate. The general configuration of the theatre of war may also have a great influence upon the direction of the lines of operations, and, consequently, upon the direction of the bases. If every theatre of war, forms a figure presenting four faces more or less regular, one of the armies, at the opening of the campaign, may hold one of these faces,—perhaps two,—while the enemy occupies the other, the fourth being closed by insurmountable obstacles. The different ways of occupying this theatre, will lead to widely different combinations.

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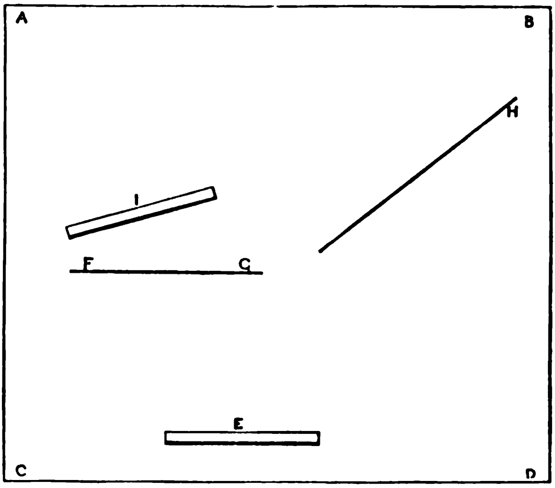
[1] Hamley, Part V., Chap. 2.

To illustrate, we will cite the theatre of the French armies in Westphalia from 1757 to 1762, and that of Napoleon in 1806, both of which are represented in Fig 1. In the first case the side AB was the North Sea, BD the line of the Weser and the base of Duke Ferdinand, CD the line of the Main and the base of the French army, AC the line of the Rhine, also guarded by French troops. The French held two faces, the North Sea being the third; and hence it was only necessary for them, by manœuvres, to gain the side BD to be master of the four faces, including the base and the communications of the enemy. The French army, starting from its base CD, and gaining the front of operations FGH, could cut off the allied army I from its base BD; the latter would be thrown upon the angle A, formed by the lines of the Rhine, the Ems, and the sea, while the army E could communicate with its bases on the Main and Rhine. The movement, of Napoleon in 1806, on the Saale was similar. He occupied at Jena and Naumburg the line F, G, H, then marched by Halle and Dessau to force the Prussian army I upon the sea, represented by the side AB. The result is well known. The art, then, of selecting lines of operations is to give them such directions as to seize the communications of the enemy without losing one's own. The line F, G, H, by its extended position, and the bend on the flank of the enemy, always protects the communications with the base CD; and, this is exactly the manœuvres of Marengo, Ulm, and Jena. When the theatre of war does not border upon the sea, it is always bounded by a

Fig. 1.



powerful neutral state, which guards its frontiers and closes one side of the square. This may not be an obstacle insurmountable like the sea; but generally it may be considered as an obstacle upon which it would be dangerous to retreat after a defeat; hence it would be an advantage to force the enemy upon it. The soil of a power which can bring into the field, 150,000 or 200,000 troops cannot be violated with impunity; and if a defeated army made the attempt, it would be none the less cut off from its base. If the boundary of the theatre of war, should be the territory of a weak state, it would be absorbed in this theatre, and the square would be enlarged till it reached the frontiers of a powerful state, or the sea. The outline of the frontiers may modify the shape of the quadrilateral so as to make it approach the figure of a parallelogram or trapezoid, as in Fig. 2. In either case, the advantage of the army which has control of two faces of the figure, and possesses the power of establishing upon them a double base, will be still more decided, since it will be able more easily to cut the enemy off from the shortened side,—as was the case with the Pussian army in 1806, with the side BDJ of the parallelogram formed by the lines of the Rhine, the Oder, the North Sea, and the mountainous frontier of Franconia. The selection of Bohemia as a base in 1813, goes to prove the truth of my opinion; for it was the perpendicularity of this base to that of the French army which enabled the allies to neutralise the immense advantages which the line of the Elbe would otherwise have afforded Napoleon, and turned the advantage of the campaign in their favour.

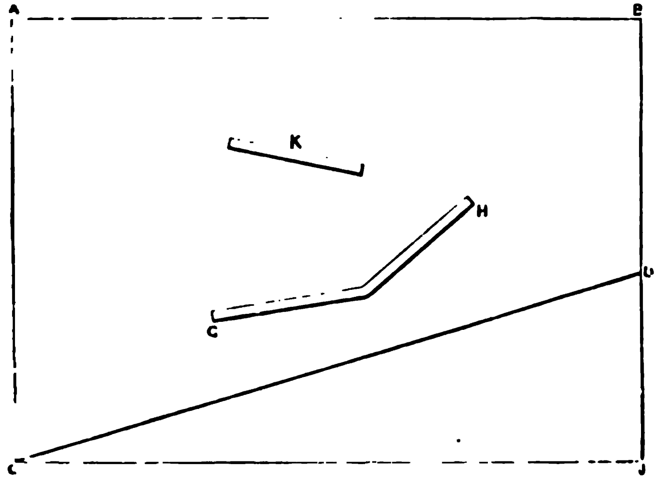


Fig. 2.

Likewise in 1812, by establishing their base perpendicularly upon the Oka and Kalouga, the Russians were able to execute their flank march upon Wiazma and Krasnoi. If anything further be required to establish these truths, it will only be necessary to consider that if the base be perpendicular to that of the enemy, the front of operations will be parallel to his line of operations, and that hence it will be easy to attack his communications and line of retreat.

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In 1806, Napoleon had also the double base of the Rhine and Main, forming almost a right re-entrant angle. He left Mortier upon the first and parallel one, while with the mass of his forces he gained the extremity of the perpendicular base, and thus intercepted the Prussians at Gera and Naumburg by reaching their line of retreat. If so many imposing facts prove that bases with two faces, one of them being almost perpendicular to that of the enemy are the best, it is well to recollect that, in default of such a base, its advantages may be partially supplied by a change of strategic front. * * Another very important point in reference to the proper direction of bases relates to those established on the sea coast. These bases may be favourable in some circumstances, but are equally unfavourable in others, as may be readily seen from what precedes. The danger which must always exist of an army being driven to the sea seems so clear, in the case of the establishment of the base upon it, (which bases can only be favourable to naval powers) that it is astonishing to hear in our day praises of such a base. Wellington, coming with a fleet to the relief of Spain and Portugal, could not have secured a better base than that of Lisbon, or rather of the peninsula of Torres-Vedras, which covers all the avenues to that capital on the land side. The sea and the Tagus not only protected both flanks, but secured the safety of his only possible line of retreat, which was upon the fleet.

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* * The first precept for a continental army is to establish its base upon the front farthest *from* the sea, so as to secure the benefit of all its elements of strength, from which it might find itself cut off if the base were established upon the coast. An insular and naval power acting on the continent would pursue a diametrically opposite course, but resulting from the same principle, viz: *to establish the*

base upon those points where it can be sustained by all the resources of the country, and at the same time insure a safe retreat. A state powerful both on land and sea, whose squadrons control the sea adjacent to the theatre of operations, might well base an army of 40 or 50,000 men upon the coast, as its retreat by sea and its supplies could be well assured; but to establish a continental army of 150,000 men upon such a base, when opposed by a disciplined and nearly equal force, would be an act of madness. However as every maxim has its exceptions, there is a case in which it may be admissible to base a continental army upon the sea: it is, when your adversary is not formidable upon land, and when you, being master of the sea, can supply the army with more facility, than in the interior. We rarely see these conditions fulfilled: it was so, however, during the Turkish war of 1828 and 1829. The whole attention of the Russians was given to Varna and Bourghas, while Shumla was merely observed; a plan which they could not have pursued in the presence of a European army (even with the control of the sea) without great danger of ruin.[1]

10. When a maritime power which commands the sea makes war in a theatre largely bounded by a coast frontier, it evidently possesses great advantages for the selection of a base; and if the frontier, besides being extensive, be angular, it will almost certainly confer the power of operating against a flank. Thus, when England made war against the French in Spain, the form of the Peninsular gave her the choice of numerous lines by which to operate. It remained to select the most effective. The Pyrenees affording no great roads, restricted the French to the lines of communication between the mountains and the coast on each side. The main line was that of Bayonne—Vittoria—Burgos—Valladolid—Madrid—Seville. A British army, operating, let us say from Gibraltar, would merely press back the French along their road to France. But it might easily select another base from which it could force the enemy to form to a flank. By seizing the road from Bayonne where it passes between the coast and the Pyrenees, it would grasp the throat of the invasion; and the nearer to that point it could operate, the more effective would be the operation.[2] • • • •

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[1] Jomini, Chap. III., Art. 18.

[2] Hamley, Part V., Chap. II.

SECTION III.

DECISIVE POINTS.

1. The decisive points of a theatre of war are of several kinds. The first are the geographic points and lines whose importance is permanent and a consequence of the configuration of the country. For example, take the case of the French in Belgium: whoever is master of the line of the Meuse, will have the greatest advantages in taking possession of the country; for his adversary being outflanked and enclosed between the Meuse and the North Sea, will be exposed to the danger of total ruin if he give battle parallel to the sea.* Similarly the valley of the Danube, presents a series of important points which have caused it to be looked upon as the key of the Southern Germany. Those points the possession of which would give the control of the junction of several valleys and of the centre of the chief lines of communication in a country, are also *decisive geographic points.*[1]

2. * * * * When * * in preference to the capital, a strategical point of greater importance is chosen to be fortified, as for example, Antwerp in Belgium, Carlsborg in Sweden, Amsterdam in Holland, all necessary measures should be previously taken to prevent a disastrous effect being produced by the fall of the capital. There,—public opinion forewarned that the retreat of the government and the army to the *military* capital of the country is a manœuvre, and not a flight, and knowing the end and utility of this manœuvre from having been prepared beforehand, will not be too painfully impressed by the abandonment of the *political* capital: and the defence may continue with the aid of all the active forces in the country, as it did in Prussia during the reign of Frederick the Second, after the capture of Berlin,—and in Spain, during the wars of the Empire, after the entry of Joseph into Madrid.[2]

3. The second kind of decisive points are accidental points of manœuvre, which result from the positions of the troops on both sides. When Mack was at Ulm, in 1805, awaiting the approach of the Russian

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* This only applies to the continental armies, and not to the English, who, having their base on Antwerp or Ostend, would have nothing to fear from an occupation of the line of the Meuse.

[1] Jomini, Chap, III., Art. 19.

[2] Brialmont, Vol. 1.

army through Moravia, the decisive point in an attack upon him was Donauwerth or the Lower Lech; for if his adversaries gained it before him he was cut off from his line of retreat, and also from the army intended to support him. On the contrary, Kray, who, in 1800, was in the same position, expected no aid from Bohemia, but rather from the Tyrol and from the army of Mélas in Italy: hence the decisive point of attack upon him was not Donauwerth, but on the opposite side, by Schaffhausen, since this would take in reverse his front of operations, expose his line of retreat, cut him off from his supporting army as well as from his base, and force him upon the Main. In the same campaign the first objective point of Napoleon was to fall on the right of Mélas by the Saint-Bernard, and to seize his line of communications: hence Saint-Bernard, Ivrea, and Piacenza were decisive points only by reason of the march of Mélas upon Nice. It may be laid down as a general principle, that the decisive points of manœuvre are on that flank of the enemy upon which, if his opponent operates, he can more easily cut him off from his base and supporting forces without being exposed to the same danger. The flank opposite to the sea is always to be preferred, because it gives an opportunity of forcing the enemy upon the sea. The only exception to this is in the case of an insular and inferior army, where the attempt although dangerous, might be made to cut it off from the fleet. If the enemy's forces are in detachments, or are too much extended, the decisive point is his centre; for by piercing that, his forces will be more divided, their weakness increased, and the fractions may be crushed separately.[1]

4. * * * When an army approaches its object by roads which meet and then again divide, the possession of the point of junction or knot of the roads, by either party, cannot but afford opportunities of menacing at once several points, or roads, which the enemy may desire to cover. The possession of points of this kind—for example, Milan and Mortara in 1849, Gera in 1806, Ivrea in 1800, Charleroi, Quatre Bras, Sombref, in 1815,—is of itself an important step in the campaign.[2]

5. * * * Napoleon in 1815 advanced suddenly across the frontier on the 15th June, and aimed straight at the point where their cantonments (of the Allies) met upon the shortest road to Brussels; his speed and earnestness shewing a resolve either to thrust his army

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[1] Jomini, Chap. III., Art. 19.

[2] Hamley, Part IV., Chap. VII.

between them, or to strike a deadly blow at the general who should most quickly gather for the encounter. The Allies had provided beforehand, in their counsels, for this very case, resolved to fight side by side, the one ready to support the other; but Napoleon's prompt advance, anticipated the design of the allied generals, and on the first day the mass of his army was upon the ground laid out for their junction, whilst Blucher could only gain its vicinity next morning with three-fourths of his force, and Wellington with a mere fraction of the British.[1]

* * * Napoleon had actually in his possession, on the first day of the campaign, the whole of the ground on which the English were to have met him, with his advanced guard holding a portion of that originally marked out for Blucher. Up to this point it can surely be asserted that the balance of strategy was on his side.[2]

SECTION IV.

OBJECTIVE POINTS.

1. An objective point, is the definite aim of a strategical combination: it may be a material point, but it is always either permanently or accidentally strategical, and difficult to determine at first. It is advantageous to select a natural point as objective, because its possession gives immediate control over a certain tract of country; this proceeding is observable in almost all the wars of the 18th century. But the selection of accidental points may produce still more important results, by dispersing the hostile forces, or defeating them separately. Napoleon preferred them, because he knew that towns fall of themselves. The difficulty consists in their judicious selection. In the defensive, the objective point becomes that which it is essential to cover—generally the capital, or a line of defence.[3]

2. The geographical position of the capital, the political relations of the belligerents with their neighbours, and their respective resources, are considerations foreign in themselves to the art of fighting battles, but intimately connected with plans of operations, and may decide

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[1] Chesney, Lecture VII. [2] *Ibid*, Lecture III. [3] Lendy.

whether an army should attempt or not to seize the hostile capital. If it be concluded not to seize the capital, the objective point might be a part of the front of operations or line of defence where an important fort is situated, the possession of which would render safe the occupation of the neighbouring territory. For instance, if France were to invade Italy in a war against Austria, the first objective point would be the the line of Ticino and Po; the second, Mantua and the line of the Adige.[1]

3. * * The proximity of Richmond to Washington caused the Federal government in each campaign in Virginia to base its calculations on the assumption that the operations of a few days, or at most a few weeks, must wrest from its adversary's hold the city from the possession of which it expected such decisive results. And no doubt early in the war, before the capital was fortified, a single crushing defeat sustained by the Confederates in the field would have given Richmond to the Federals. But in cases where a great distance separates the invader from his object, he cannot expect to attain it in a single effort. Thus, if France were at war with Austria she could scarcely expect, in the most favourable circumstances, to reach Vienna in one campaign. Her first object would be to attain a position in Austrian territory which would form a secure starting point for a fresh effort. * * *
If France were at war with Spain, the first object of a French army might be the line of the Ebro, the next the line of the Douro or of the Guadarama mountains—then Madrid and the Tagus. Thus the object of an invading army may be either a point from the possession of which it expects decisive results, or a strong defensive line such as will be an important step towards that point.[2]

4. Before quitting Malta for Egypt, Sir Ralph Abercromby had sketched out a general plan of operations, admitting an alternative which he might be compelled by circumstances to adopt. To gain possession of Alexandria was his first and preferable object. The best information he had been able to collect represented the French garrison to be insufficient in numbers for the defence of the extensive fortifications; and the works themselves had been, it was stated, neglected, and were incomplete. If Alexandria could be taken, its importance was

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[1] Jomini, Chap. III., Art. 19.

[2] Hamley, Part II., Chap. II.

hardly to be over-rated. It afforded the only harbour on the coast of Egypt. The French army in that country would be at once cut off from the chance of receiving succour from France. To the English it would present a secure base for their further operations, and a certain line of communication with Malta and England.[1]

SECTION V.

LINES OF OPERATIONS.

1. An army ought to have only one line of operation. This should be preserved with care, and never abandoned but in the last extremity.[2]

2. The great art of properly directing lines of operations, is to establish them in reference to the base and to the marches of the army as to seize the communications of the enemy without imperiling one's own, and is the most important and most difficult problem in strategy. There is another point which exercises a manifest influence over the direction to be given to the line of operations; it is when the principal enterprise of the campaign is to cross a large river in the presence of a numerous and well appointed enemy. In this case, the choice of this line depends neither upon the will of the general nor the advantages to be gained by an attack on one or another point; for the first consideration will be to ascertain where the passage can be most certainly effected, and where are to be found the means for this purpose.[3]

3. If the line of the river is so short that the hostile army is more concentrated, and the general has the means of taking up after the passage a front perpendicular to the river, it would be better to pass it upon one of the extremities, in order to throw off the enemy from the bridges.[4]

4. General Rogniat observes: "It is impossible for a modern army so to reduce its requirements as to be able to dispense with magazines and depôts. The provisions carried by an army are, in general, calculated only to last four days; and I do not believe it possible that an army

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[1] Sir H. Bunbury. [2] Napoleon. [3] Jomini, Chap. III., Art. 21. [4] *Ibid.*

could, under any circumstances, carry with it provisions likely to last more than eight. Such part of these provisions as consists in bread and biscuit, can only be prepared in establishments previously constructed for that purpose. Fire-arms necessitate so great a supply of ammunition, that it is impossible for an army to carry with it more than sufficient for one battle, after which it would be left utterly defenceless were it to be cut off from the depôts destined to replenish its resources; in addition to which, even in the event of finding places fitted for safely depositing its ammunition and provisions, and for establishing its hospitals and arsenals, those places would require a considerable time to fortify. It is therefore, evident that,—as it is impossible for an army either to carry with it, or to find or prepare rapidly in a foreign country, all the indispensable requisites for its safeguard, its existence, and the carrying on of the war generally—it becomes an inviolable rule, that an army should never stray beyond a certain distance from its base."[1]

Depôts of supplies.

5. Each line of operation ought to be covered by the movements and the positions of the army, it follows then that the most favourable points for depôts of supplies ought to be found on this line; and as it also determines the direction of all movements both in the advance and when retiring, it points out the most convenient way for the transport of necessaries.[2]

6. As the army advances and removes further from its base, it becomes the more necessary to have a good line of operations and of depôts which may keep up the connection of the army with its base. The staff officers will divide the depôts into departments, the principle depôt being established in the town which can lodge and supply the greatest number of men: if there is a fortress suitably situated, it should be selected as the site of the principal depôt. The secondary depôts may be separated by distances of from fifteen to thirty miles, usually in the towns of the country. The mean distance apart will be about twenty to twenty-five miles. This will give fifteen depôts upon a line of three hundred miles, which should be divided into three or four brigades or depôts. Each of

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[1] Lendy. [2] Archduke Charles.

these will have a commander and a detachment of troops or convalescent soldiers, who regulate the arrangements for accommodating troops and give protection to the authorities of the country, (if they remain); they furnish facilities for transmitting the mails and the necessary escorts; the commander sees that the roads and bridges are kept in good order. If possible, there should be a park of several carriages at each depôt, certainly at the principal one in each brigade.[1]

7. The Duke of Wellington's correspondence after the battle of Talavera sets in the strongest possible light the essential importance of magazines, and the consequences of operating without them. The English army, leaving its depôt in Portugal, had moved into the valley of the Tagus to co-operate with the Spanish forces which were opposing the French corps in front of Madrid. The junction of the allies effected, they had engaged and beaten the enemy at Talavera. As the commander of an auxiliary force, acting in conjunction with a native army, in a country which, though sterile in parts, yet afforded ample supplies, Wellington could not have anticipated any difficulty in procuring provisions, for which full value would have been readily paid; and he had accordingly entered Spain relying on the promises of the Spanish government to provide ample subsistence and means of transport for his army. Yet, victorious as he was, he speedily found that army crippled for want of food and forage; and, after numerous remonstrances, he was driven to execute what he had frequently threatened, and marched his troops back to Portugal.[2]

8. The depôts formed either by purchase or forced requisitions, should be echeloned as much as possible upon three different lines of communication, in order to supply with more facility the wings of the army, and to extend as much as possible the area from which successive supplies are to be drawn, and, lastly, in order that the depôts should be as well covered as possible. To this end, it would be well to have the depôts on lines converging towards the principal lines of operations, which will be generally found in the centre. This arrangement has two real advantages: first, the depôts are less exposed to the attempts of the enemy, as his distance from them is thereby increased; secondly, it facilitates the movements of the army in concentrating upon a single

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[1] Jomini, Chap. VI., Art. 41.

[2] Hamley, Part I., Chap. II.

point of the line operations to the rear, with a view of retaking the initiative from the enemy, who may have temporarily assumed the offensive and gained some advantage. In thinly settled and unproductive regions the army will lack its most necessary supplies: it will be prudent, in this case, not to advance too far from its depôts, and to carry with it sufficient provisions to enable it, if compelled to do so, to fall back upon its lines of depôts.[1]

9. An army which undertakes the conquest of a country, has either its two wings resting upon neutral territories, or upon great natural obstacles, such as rivers or chains of mountains. It happens in some cases, that only one wing is so supported, and in others, that both are exposed. In the first instance cited, viz., where both wings are protected, a general has only to guard against being penetrated in front. In the second, where one wing only is supported, he should rest upon the supported wing. In the third, where both wings are exposed, he should depend upon a central formation, and never allow the different corps under his command to depart from this; for if it be difficult to contend with the disadvantage of having *two* flanks exposed, the inconvenience is doubled by having *four*, and tripled if there be *six*; that is to say, if the army is divided, into two or three different corps. In the first instance, then, as above quoted the line of operation may tend indifferently to the right or left. In the second, it should be directed towards the wing in support. In the third, it should be perpendicular to the centre of the army's line of march. But in all these cases, it is necessary every five or six days, to have a strong post or an intrenched position upon the line of march, in order to collect stores and provisions, to organise convoys, to form a centre of movement, and establish a point of defence to shorten the line of operation.[2]

10. The Italians, in acting against the quadrilateral,—"in 1866"—with their army concentrated, could either advance across the Mincio and rush headlong against its parapets and embrasures, or by advancing from the Lower Po, push towards Padua to cut the main line of com-

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[1] Jomini, Chap. III., Art. 25.

[2] Napoleon.

munication with Vienna. General La Marmora had a very difficult problem to solve, and was not fortunate in the conditions he introduced into its solution. His information as to the Austrian designs was manifestly exceedingly faulty, while that of the Archduke Albrecht was excellent. The Italian general was bound to assume the offensive, for political reasons. Neglecting a plan for his campaign which had been forwarded from Berlin,[*] he adopted one which, as is believed, had been determined upon in case of the prosecution of the war of 1859, by a mixed council of French and Italian officers. The main attack was to be made against the Mincio and the Adige, by the principal army, under the personal command of King Victor Emmanuel.[1]

11. If the art of war, consists in bringing into action upon the decisive point of the theatre of operations the greatest possible force, the choice of the line of operations, being the primary means of attaining this end, may be regarded as the fundamental idea in a good plan of a campaign. Napoleon proved this by the direction he gave his armies in 1805 on Donauwerth, and in 1806 on Gera,—manœuvres that cannot be too much studied by military men. Of course, it is impossible to sketch in advance the whole campaign. The objective point will be determined upon in advance, the general plan to be followed to attain it, and the first enterprise to be undertaken for this end: what is to follow will depend upon the result of this first operation, and the new phases it may develop. The direction to be given to this line, depends upon the geographical situation of the theatre of operations, but still more upon the position of the hostile masses upon this strategic field. *In every case, however, it must be directed upon the centre or upon one of the extremities, Only when the assailing forces are vastly preponderating would it be otherwise than a fatal error to act upon the centre, and the two extremities at the same time.* It may be laid down as a general principle, that, if the enemy divide his forces on an extended front, the best direction of the manœuvre line will be upon his centre, but in every other case, when it is possible, the

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[*] The plan of campaign forwarded from Berlin is supposed to have been the product of General Von Moltke, and to have been as follows:—A corps of Italians of about 100,000 men was to cross the Lower Po to the east of the Mincio, and take up a strong position between Mantua and Legnano, and by their presence hold the Austrian army within the Quadrilateral, while the remainder of the Italian army, by the aid of the fleet, disembarked in the neighbouroood of Trieste, and pushed directly upon Vienna.

[1] Hozier, Vol. II.

best direction will be upon one of the flanks, and then upon the rear of his line of defence or front of operations. The advantages of this manœuvre arises more from the opportunity it affords of taking the line of defence in reverse, than from the fact that by using it the assailant has to contend with but a part of the enemy's force. Thus the army of the Rhine in 1800, gaining the extreme left of the line of defence of the Black Forest, caused it to yield almost without an effort. This army fought two battles on the right bank of the Danube, which, although not decisive, yet from the judicious direction of the line of operations, brought about the invasion of Swabia and Bavaria. The results of the march of the army of reserve by the Saint Bernard and Milan upon the extreme right of Mélas were still more brilliant. Even when the extremity of the enemy's front of operations is gained, it is not always safe to act upon his rear, since by so doing the assailant in many cases will lose his own communications. To avoid this danger, the line of operations should have a geographic and strategic direction, such that the army will always find either to its rear or to the right or left a safe line of retreat. In this case to take advantage of either of these flank lines of retreat, would require a change of direction of the line of operations.[1]

12. 'Subsequent to the occupation of Moscow, in 1812—by Napoleon,' all the immediate resources of the country that had not been destroyed or removed by the Russians had been consumed by the French army, and owing to the impracticable state of the roads in Russia during autumn, the magazines could not be replenished till winter should set in and the sledge-ways should be established. Napoleon now saw that the flattering prospect of finishing the war in one campaign had entirely vanished; to maintain his army any longer in its advanced position was impossible, he therefore resolved to fall back upon Smolensko, where his magazines were better stored, and from whence his line of communication would be less liable to interruption. To effect this retreat it was his "strategie" to endeavour by the flank movement in the direction of Kalouga of his whole force, right in front, to turn the left of the Russians and place his army in a position, with reference to that in which his opponent stood, better cal-

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[1] Jomini, Chap. III., Art. 21.

culated to cover its own retreat on Smolensko. This was a grand conception in strategy, calculated to relieve his army from the false position into which Koutousof's flank movement had placed it; and the only excuse for his having delayed it too long, was the hope with which he flattered himself that the moral effect of his occupation of Moscow would prove decisive.

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Koutousof received intelligence of the movements of the enemy, but does not appear to have comprehended the whole extent of their design till the 4th French corps had reached Borowsk; indeed the primary concentration of the enemy might equally have portended an attack in front on the position at Taroutino, where he was prepared to receive it; he could only hope now to anticipate them on their line of march by leaving his entrenched camp, and moving to his left upon Malo-Jaroslavets. * * *

* * * Koutousof retired in the direction of Kalouga to a defensive position, and next day, either not liking his ground, or for some other reason not thinking the time had arrived for making a stand, he commenced a farther retreat upon Kalouga, leaving Miloradovitch as his rear guard. Napoleon, on the other hand, supposed, from the information he received, that his retreat towards Kalouga was not only anticipated, but obsolutely barred by an army superior both in numbers and condition, ready to offer battle in a strong position in front; the left flank of his line of march had been insulted at various points by attacks of light cavalry and the Cossacks of Platof, from one of which he himself had narrowly escaped, and from which molestation his cavalry was no longer in a state to protect him; he therefore declined attempting to open his road by attacking the Russian army, and, relinquishing all farther idea of a flank movement resolved to turn suddenly back, and assume for his line of retreat the same exhausted route through Mojaisk by which he had advanced.[1]

13. When the conquest of a country is undertaken by two or three armies, which have each their separate lines of operation until they

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[1] Cathcart.

arrive at a point fixed upon for their concentration, it should be laid down as a principle that their junction should never take place near the enemy, because the enemy, in uniting his forces, may not only prevent it, but beat the armies in detail.[1]

14. 'In the German campaign of 1866'—The great risk of the Prussian operation was this, that for seven or eight days their two armies, from Gorlitz and Glatz, would be isolated by an impervious mountain barrier, and either might, on issuing into Bohemia, be confronted by a superior enemy. With the defeat of either, the joint invasion would be frustrated, and the victorious Austrians might follow the beaten corps into Prussian territory and threaten the capital. The risk was reduced to its minimum by the employment of the field-telegraph that accompanied each army in its march, keeping up the connection between the head-quarters and Berlin. Waggons carrying the telegraph, the operator, and the poles, kept their place throughout the movement. Thus each commander knew all the steps of his colleague, and the cloud which has hitherto wrapt such joint enterprises in uncertainty, was dissipated from hour to hour. Nevertheless, it is possible that it might still have been safer though less daring policy, had both armies issued from the Gorlitz passes. The risk of separate defeat once over, there is, however, * * a special advantage in thus entering the theatre from two sides.[2]

15. When Wellington concerted with Blucher at Bry operations against Napoleon on the 16th June, he proposed to aid him by advancing against Napoleon's left flank and rear by the Gosselies road. In doing so, he would have covered his own line to Ostend. When Napoleon followed Wellington to Waterloo, he detached Grouchy partly to cover his flank and rear, which were especially exposed, because if the Prussians should advance towards Quatre Bras or Charleroi, they would still cover their own line to Liege. And, lastly, when Blucher approached Waterloo, he attacked Napoleon in the most fatal direction, being himself on a front which covered from the main French army the line through Wavre to Liege. Thus the divergence of the base of the allied armies enabled them to deliver their blows in the most fatally decisive manner against the enemy's flank and rear; which, had they operated from a

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[1] Napoleon.

[2] Blackwood's Mag.

common base, such as Antwerp, they could not have done without exposing their own communications. If then, allied armies, operating from divergent bases, *can combine*, their operation will be more effective than if they had a common base.* But from the moment that their concert is destroyed by the interposition of an adequate force, the chances are against them.[1]

16. The Prussian invasion of Hanover and Hesse-Cassel—'1866'—was effected by combined movements from different points far apart: the enterprise was accordingly attended with considerable difficulty. It was very undesirable to weaken the main Prussian armies, on the frontiers of Saxony and Silesia by the smallest detachments. Orders were accordingly sent to General Falckenstein, who was in Westphalia, to invade these states with both his divisions, and to occupy them. Göben's division was to be directed from Minden on Hanover, to which town that of General Manteuffel, from Harburg was also to march. Beyer's division was ordered at the same time, to invade Hesse-Cassel from Wetzlar. The Hanoverian army was not yet mobilized, that of of Cassel was but a weak contingent, so that it was calculated that it would be quite possible, with these three Prussian divisions to bring superior numbers to bear on any decisive points.[2] * * *

17. Two independent armies should not be formed upon the same frontier: such an arrangement could be proper only in the case of large coalitions, or where the forces at disposal are too numerous to act upon the same zone of operations; and even in this case it would be better to have all the forces under the same commander, who accompanies the principal army. As a consequence of the last-mentioned principle, with equal forces on the same frontier, a single line of operations will be more advantageous than a double one. It may happen, however, that a double line will be necessary, either from the topography of the seat of war, or because a double line has been adopted by the enemy, and it will be necessary to oppose a part of the army to each of his masses. In this case, interior or central lines will be preferable to exterior lines, since in the former case the fractions of the army can be

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* The truth of this assertion was illustrated, very soon after the publication of the work, by the victory of Königgrätz, where the two Prussiau armies, advancing from different sides of the theatre, combined their attack with fatal effect.

[1] Hamley, Part IV., Chap. V.

[2] Hozier, Vol. I.

concentrated before those of the enemy, and may thus decide the fate of the campaign. Such an army may, by a well combined strategic plan, unite upon and overwhelm successively the fractions of the adversary's forces. To be assured of success in these manœuvres, a body of observation is left in front of the army to be held in check, with instructions to avoid a serious engagement, but to delay the enemy as much as possible by taking advantage of the ground, continually falling back upon the principal army. A double line is applicable in the case of a decided superiority of force, when each army will be a match for any force the enemy can bring against it. In this case, this course will be advantageous, since a single line would crowd the forces so much as to prevent them all from acting to advantage. However, it will always be prudent to support well the army which, by reason of the nature of its theatre and the respective positions of the parties, has the most important duty to perform.[1]

18. Divergent or convergent operations may be either very good or very bad: all depends on the situation of the respective forces. The eccentric lines, for instance, are good when applied to a mass starting from a given point, and acting in divergent directions to divide and separately destroy two hostile forces acting upon exterior lines. Such was the manœuvre of Frederick which brought about at the end of the campaign of 1757, the fine battles of Rossbach and Leuthen. Such were nearly all the operations of Napoleon, whose favorite manœuvre was to unite, by closely-calculated marches, imposing masses on the centre, and having pierced the enemy's centre, or turned his front, to give them eccentric directions to disperse the defeated army. On the other hand, concentric operations are good in two cases:

(1) When they tend to concentrate a scattered army upon a point where it will be sure to arrive before the enemy.

(2) When they direct to the same end the efforts of two armies which are in no danger of being beaten separately by a stronger enemy.

Concentric operations which just now seem to be so advantageous, may be most pernicious,—which should teach us the necessity of detecting the principles upon which systems are based, and not to confound principles and systems; as, for instance, if two armies set out from a distant base to march convergently upon an enemy whose forces are on interior lines and more concentrated, it follows that the latter could effect a union before the former, and would inevitably defeat them; as was the case with Morean and Jourdan in 1796, opposed to the Archduke Charles. In starting from the same points, or from two points much less separated than Dusseldorf and Strasbourg, an army may be exposed to this danger. What was the fate of the concentric columns of Wurmser and Quasdanovitch, wishing to reach the Mincio by the two banks of Lake Garda? Can the result of the march of Napoleon and Grouchy on Brussels be forgotten? Leaving Sombref they were to march concentrically on this city,—one by Quatre Bras, the other Wavre. Blucher and Wellington, taking an interior strategic line, effected a junction before them, and the terrible disaster of Waterloo proved to the world that the immutable principles of war cannot be violated with impunity. Such events prove better than any argument that a system which is not in accordance with the principles of war cannot be good. I lay no claim to the creation of these principles, for they have always existed, and were applied by Cæsar, Scipio, and the Consul Nero, as well as by Marlborough and Eugène; but I claim to have been the first to point them out, and to lay down the principal chances in their various applications.[1]

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[1] Jomini, Chap. III., Art. 21.

19. Interior lines of operations, are those adopted by one or two armies to oppose several hostile bodies, and having such a direction that the general can concentrate the masses and manœuvre with his whole force in a shorter period of time than it would require for the enemy to oppose to them a greater force. Exterior lines lead to the opposite result, and are those formed by an army which operates at the same time on both flanks of the enemy, or against several of his masses.[2]

20. In 1800, Napoleon had returned from Egypt, * * * * * * One hundred and fifty thousand men marched upon the two flanks of Switzerland, and debouched, one upon the Danube and the other upon the Po. This insured the conquest of vast regions. Modern history affords no similar combination. The French armies were upon interior lines, affording reciprocal support, while the Austrians were compelled

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[1] Jomini, Chap. III., Art. 21.

[2] *Ibid.*

to adopt an exterior line, which rendered it impossible for them to communicate. By skilful arrangement of its progress, the army of the reserve cut off the enemy from his line of operations, at the same time preserving its own relations with its base and with the army of the Rhine, which formed its secondary line.[1]

21. Multiple lines are resorted to when it is impossible to select lines of any other kind, and when, either on account of the uneven nature of the ground, or the magnitude of the army, the columns would be two deep, and might exhaust the country. Even when the enemy is divided it is not preferable to follow his example, because, by assuming a central direction, we can operate against either of his divisions. We must not confound multiple lines, with the directions followed by the great moveable and temporary detachments. These have always aims, more or less secondary, to arrive at; and, as the main object is to obtain a success on the decisive point, they must be avoided. They are generally recurred to in order to oblige the enemy to retreat, by threatening his line of operations, or for the purpose of covering our own; to march towards a hostile corps to prevent its junction, or to facilitate the arrival of succours; to observe and hold in check a considerable fraction of the enemy, while we strike a blow at the remainder.[2] * * *

22. Parallel lines, are those which continue at about the same distance from each other throughout the theatre of operations. While this disposition is resorted to no juncture can take place, the general aim is undermined, and the marches slower and less decisive. Such lines should be abandoned in presence of superior forces, and the component parts of the army should be included within the lines of communication, before undertaking anything of importance. Parallel lines are but seldom made use of.[3]

23. It may be laid down as a principle, that the line of operation should not be abandoned; but it is one of the most skilful manœuvres in war to know how to change it, when circumstances authorise or render this necessary. An army which changes skilfully its line of operation, deceives the enemy, who becomes ignorant where to look for its rear, or upon what weak points it is assailable.[4]

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[1] Jomini, Chap. III., Art. 21. [2] Lendy. [3] *Ibid.* [4] Napoleon.

24. It sometimes happens that an army is obliged to change its line operations in the middle of a campaign. This is a very delicate and important step, which may lead to great successes, or to equally great disasters if not applied with sagacity, and is used only to extricate an army from an embarassing position. Napoleon projected several of these changes; for in his bold invasions he was provided with new plans to meet unforseen events. At the battle of Austerlitz, if defeated, Napoleon had resolved to adopt a line of operations through Bohemia on Passau or Ratisbon, which would have opened a new and rich country to him, instead of returning by Vienna, which route lay through an exhausted country and from which the Archduke Charles was endeavouring to cut him off. Frederick executed one of these changes of the line of operations, after the raising of the siege of Olmütz.[1]

25. There are circumstances in which it is useful and salutary to change, in the midst of a campaign the direction of the line of operation, and to choose another base; and although the most natural idea and the most habitual usage may be to place ourselves in front of the country which we wish to defend, it sometimes happens, nevertheless, that it is placed more efficaciously in a safe condition, by assuming a line of operation which seems to abandon it and deliver it up to the enemy.

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In 1814, the Marshal Duke of Dalmatia (Soult), after having operated upon the Adour, was obliged to quit the basin of that river, and he directed his line of operation upon Toulouse. In this he acted wisely for he thus kept off the English army from the centre of France, more certainly than in retiring upon Bordeaux, where they would have followed him: a small body of troops, supported by the national guards, placed in rear of the waste lands, and covering Bordeaux, would have guaranteed the safety of that town, if the spirit of the times and the political complications of the interior had not rendered these wise dispositions useless.[2]

26. In 1794, the Austrians, acting on the same line as Blucher 'in 1815,'—and defeated on nearly the same ground in the Battle of Fleurus, commenced a retreat towards the Rhine, which soon carried them away from their English and Dutch Allies under the Duke of York; and their

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[1] Jomini, Chap. III., Art. 21.

[2] Marmont.

so doing gave a decided advantage to the French invaders of Belgium, which from that hour was never lost. Napoleon was too close a student of the revolutionary wars not to be fully aware of these facts. It seemed to him, as the sequel shows, more than probable that, whichever of the allies was defeated, would be naturally tempted to imitate the Austrian general of twenty years before, and secure his own direct retreat. He knew Blucher was too practical a soldier not to recognise the immense inconvenience which it would be, in case of prolonged hostilities, to abandon the Namur-Liege line, and open a new one from Prussia to supply his army by. This knowledge added to his naturally sanguine temperament, made him calculate at once, after Ligny was won, that the natural result would be that separation of his enemies which he desired, by the retirement eastward of the defeated army. * * * * * * Gneisenau, coming into temporary command after the fall of Blucher at the end of the battle, and finding the struggle for the present hopelessly decided, chose at all risk of inconvenience to abstain from the notion of a retreat to the east, and to keep as near as might be to the English army. Without any direct communication with Wellington (as far as can be positively ascertained), he put his army in motion northward for Wavre at the earliest daybreak.[1]

SECTION VI.

LINES OF COMMUNICATION.

1. 'Since the brief campaign of 1815, in Belgium,'—all writers of any importance have agreed that the principles of strategy up to this epoch might be tolerably well summed up in two plain rules, "to act against the enemy's communications, while keeping your own guarded," and "to bring masses of your own forces against fractions of the enemy." The second of these so evidently contains the elements of success, that it needs little comment; it is the principle by which a general increases the probability of victory. But he has also to insure the most important

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[1] C. C. Chesney, Lecture V.

consequences from victory, and this is where the other principle comes into action. He may win a battle, and drive his enemy off the field; but if the enemy retires upon his magazines, where he can draw fresh supplies of men and material, the work has probably to be repeated, and so long as the enemy stands between the victor and his object, the consequences of the victory are comparatively small. If, however, the defeated enemy be driven away from his supplies, if he be cut off from his supports, and from his magazines, if, in other words, his communications be severed, he is indeed, in a sorry plight.*[1] * * * *

2. To act upon lines far removed from each other, and without communications, is to commit a fault which always gives birth to a second. The detached column has only its orders for the first day; its operations on the following day depend upon what may have happened to the main body. Thus the column either loses time upon emergency, in waiting for orders, or acts without them, and at hazard. Let it therefore be held as a principle, that an army should always keep its columns so united as to prevent the enemy from passing between them with impunity. Whenever, for particular reasons, this principle is departed from, the detached corps should be independent in their operations. They should move towards a point fixed upon for their future junction. They should advance without hesitating, and without waiting for fresh orders, and every previous means should be concerted to prevent their being attacked in detail.[2]

3. As the different portions of an army on the defensive must unite as quickly as possible on the line by which the enemy advances, it is, of course, indispensable that there should be good intercommunications, or lateral roads, by which they can readily approach each other. And these should not be coincident with the front of the army, but in rear of it —otherwise, if a division or corps were pushed back by the rapid advance of the enemy, the line of intercommunication would be broken. Also, if an army were advancing towards the enemy, and using, for the sake of facility, several adjacent roads, these, however near, should not be separated by any impassable obstacle, such as a great swamp, a mountain ridge, or a river without fords or bridges; otherwise, one portion of the army might be merely spectators of an attack upon the rest, as happened

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[1] St. Paul's Mag. [2] Napoleon.

at Rivoli, where an Austrian column, moving on the left of the Adige, witnessed the defeat of the army on the other bank; and as occurred more notably in 1796, when the Austrians, advancing into Italy on both sides of Lake Garda, were beaten in succession by the same French army. Thus, the line by which an army moves is not necessarily, nor frequently, a single road, but several roads tending in the same direction, and united by a sufficient number of cross-roads.[1]

4. The line of communication, says Montecuculli, must be certain and well established, for every army that acts from a distant base, and is not careful to keep this line perfectly open, marches upon a precipice. It moves to certain ruin, and may be seen by an infinity of examples. In fact, if the road by which provisions, ammunition, and reinforcements are to be brought up, is not entirely secured; if the magazines, the hospitals, the depôts of arms, and the places of supply are not fixed, and commodiously situated, not only the army cannot keep the field but it will be exposed to the greatest dangers.[2]

5. A notable illustration of the dangers of a long line of communication is furnished by Napoleon's Russian campaign. During his advance upon Moscow, two Russian corps were moving, the one from Finland, the other from the south of the empire, towards his line of communications. They struck it where it crossed the Beresina, and caused the horrible disasters of that famous retreat.[3]

6. It is contrary to all true principles to make corps which have no communication, act separately against a central force, whose communications are open.[4]

7. The Austrians lost the battle of Hohenlinden by neglecting this principle. The Imperial Army under the orders of the Archduke John, was divided into four columns, which had to march through an immense forest previous to their junction in the plain of Auzing, where they intended to surprise the French. But these different corps having no direct communication, found themselves compelled to engage separately with an enemy who had taken the precaution of concentrating his masses, and who could move them with facility in a country with which he had been long previously acquainted.[5]

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[1] Hamley, Part I., Chap. IV.

[2] Sir G. C. D'Aguilar.

[3] Hamley, Part II., Chap. I.

[4] Napoleon.

[5] Sir G. C. D'Aguilar.

8. The direction taken by an army to reach the object of operation, is termed the line of operation; the direction by which an army obtains it supplies is its line of communication. When the British forces under Sir Chas. Napier, invaded Scinde, in 1842, Roree, near the river Indus, was his base of operations; the Indus and the road from Roree to Ferozepoor were his lines of communication. The flight of the Ameers to the southward having altered his plan, Hyderabad became his object of operation, upon which he advanced after destroying Emaum Gurh, a strong fortress which lay on his left, and from whence the enemy might have cut off his base. The road from Kheyrpoor to Hyderabad, through Deege-ka-kote and Nowshere, was his line of operation. After the battle of Meanee, 7th February, 1843, Sir Charles took up a position on the Indus in rear of Hyderabad, which he strengthened by forming an intrenched camp; this position became his base of operation, and the Indus his only line of communication.[1]

9. It is evident that an army best secures its communications by moving on a front which is perpendicular to them, and in proportion as the front approximates to a direction parallel to the communications, does their security diminish.[2]

10. One great advantage to be gained by the selection of certain lines for moving troops in a theatre of war is the forcing of an enemy to form front in a direction which shall render his hold on his communications insecure. And the defensive army generally possesses the power of doing this in greater degree than its enemy. Evidently then a point may be more effectually defended indirectly than directly.[3]

11. When two armies are manœuvreing against each other, this condition, namely, that both are probably moving on many roads, and consequently on an extended front, renders it possible for one to gain an advantage by superior readiness to concentrate. The concentration effected it may hope to penetrate between the parts of the opposing army, destroy their connexion, and bring against some of them separately a greatly superior force. These advantages then, and those which follow from menacing an enemy's communications, are such as are to be gained by strategy. The methods of attaining them are as various as different theatres of war are diversified and complicated.

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[1] (Napier's Conquest of Scinde.) Jervis.

[2] Handbook.

[3] *Ibid.*

They must be gathered from the records of military operations—but in studying these it will be most important, indeed absolutely essential, for the student to ascertain and fix in his mind the following circumstances: 1. The defensible lines, or bases, on which the hostile armies respectively rely. 2. The direction of the lines by which they approach each other from those bases, the number of roads they move on, and the communications between those roads. 3. The comparative extent of the fronts of the opposing armies, at various periods. 4. The directions of the fronts of the opposing armies with regard to their own and the enemy's lines of communication.[1]

12. After Madrid,—'in 1808,'—had capitulated to Napoleon, he was informed of Sir John Moore's advance on the 21st December; in an instant the Spaniards, their juntas and their armies were dismissed from his thoughts; the different corps were arrested in their movements, ten thousand men were left to control the capital, and on the evening of the 22nd, fifty thousand men were at the foot of the Guadarama. * * *

Personally urging on the troops with unceasing vehemence the emperor arrived at Villacastin, fifty miles from Madrid, on the 24th, and the 26th he was at Tordesillas with the guards and the divisons of La Pisse and Dessolles. The dragoons of La Houssaye were at Valladolid on the same day, and Marshal Ney, with the sixth corps, was at Rio Seco. From Tordesillas Napoleon communicated with Soult, informed him of these movements, and concluded his despatch thus: "*Our cavalry scouts are already at Benevente. If the English pass to day in their position they are lost; if, on the contrary, they attack you with all their force, retire one day's march; the farther they proceed the better for us. If they retreat, pursue them closely;*" and then full of hope, he hastened to Valderas, but had the mortification to learn that, notwithstanding his rapid march, having scarcely rested night or day, he was twelve hours too late. The British were across the Esla! In fact Soult was in full pursuit when this letter was written, for Sir John Moore, who was well aware of his real situation, had given orders to retreat the moment the intelligence of Napoleon's march from Madrid reached him.[2]

13. Fortune always asserts her supremacy in war, and often from a slight mistake such disastrous consequnces flow that in every age and

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[1] Handbook. [2] Napier, Vol. I.

every nation the uncertainty of arms has been proverbial. Napoleon's march upon Madrid in 1808, before he knew the exact situation of the British army is an example. By that march he lent his flank to his enemy. Sir John Moore seized the advantage and though the French emperor repaired the error for the moment by his astonishing march from Madrid to Astorga, the fate of the Peninsula was then decided. If he had not been forced to turn against Moore, Lisbon would have fallen, Portugal could not have been organised for resistance, and the jealousy of the Spaniards would never have suffered Wellington to establish a solid base at Cadiz: that general's after successes would then have been with the things that are unborn.[1]

14. Sir John Moore advanced from Portugal far into Spain; and to effect a diversion in favour of the southern patriots, adventured himself within reach of immensely superior hostile forces which were directed by Napoleon But his ships were ordered round to Corunna, which place he adopted as his base on leaving Portugal. He never could have regained Portugal. The direction of his march was N.E., and his right flank was therefore exposed to the attacks of the French forces, which would have gathered on it from the E. and S.E. Corunna was chosen as being the point which led away the most directly from the general line of his enemy's advance.[2]

15. On the evening of the 15th June, 1866, Prussia declared war against Hanover, Hesse-Cassel, and Saxony. The two former states, unless their armies were quickly disabled, could hinder effectually the Prussian communications between Berlin and the Rhenish provinces. An occupation of Saxony would have much facilitated operations against the open province of Brandenburg and against Berlin, while it would have seriously impeded a Prussian advance into Bohemia against these States; then, it was necessary that Prussia should act with immediate energy, in order, if possible, to disarm, certainly to occupy, them before they should turn her attention against her principal enemy Austria, and the states allied thereto. By excellent combinations punctually carried out, this result was obtained. In the course of a few days, three of the most important middle states of Germany were completely overrun by Prussian troops: and their sovereigns driven from their capitals and countries, as if by a thunderbolt.[3]

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[1] Napier, Vol. VI.

[2] MacDougall.

[3] Hozier, Vol. I.

Campaign in Georgia.

16. Sherman was the first man to shew, that if he got a country tolerably fertile, stripped of male defenders and abandoned to women and slaves, and supposing that in that country the people should have been induced beforehand to grow very large supplies of corn and everything of that kind, with the idea of feeding their own armies, he might take his own army through that country, and feed his men with the food grown for their enemies. Upon that principle, he founded part of his campaign.[1]

17. The design agreed upon was, that Sherman, starting from Chattanooga, on the river Tennessee, to which point he had the advantage of railroads and a navigable river, should work his way into the heart of the great state of Georgia up to Atlanta—called, from its commanding position, the Gate City—from whence he might take his own further course as best he might think fit, if he only once got there.[2]

18. The plan in words was simple enough, but difficult in execution. It was just this. Having an army superior in numbers, half of it would cover the front of the Confederates. He would then be able to detach one half at a time in whatever direction he chose. If then he could keep the Confederates pinned to one place by watching them with part of his army, the rest might move round, and come upon the railroad behind them, and so force them to retreat. To do this required a great many waggons; for that part of the army which moved had to keep itself for several days in a mountainous district stripped of supplies. It required a good general to be sent away on so detached a service, almost into the rear of the enemy; and it required many other conditions (which men of genius like Sherman understand better than ordinary mortals) before he could overcome such great practical difficulties. That was the general idea of the plan, and he at once, when his commissariat

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[1] (U.S. Institution,) C.C.C.

[2] *Ibid.*

was ready, began to carry it out. Having on the 6th of May arrived before his enemy and felt his position, and found it exceedingly strong, and being determined to save his men as much as possible, he commenced his flanking operations.[1]

19. With an inferior army, General Johnston, a man of the highest repute when the war broke out, had, * * the task of detaining Sherman as long as possible. His head quarters were at Dalton. In front of Dalton there is a steep hill, which made the position so formidable that Sherman, a cautious general, did not choose to attack it. He had to devise in the course of this campaign a plan by which he should turn, not one such hilly position, but half a dozen at least successively; and thus, withont wasting his men in vain attacks upon Confederate entrenchments, force his foes to fall back along the railroad from Atalanta, which they so much wished to cover.[2]

20. There are two plain lessons taught by this campaign. First, the importance in war of threatening your enemy's communications, whilst securing your own. Second, the possibility in such a case as that already indicated of taking an army across country without any regular line of communications at all. The practice of the first brought Sherman into Atalanta; the other gave him Savannah.[3]

21. In general, * the better course—'to be pursued by an army that aims at its adversary's rear,'—would be for the assailant, on attaining the point of the communications aimed at, to move rapidly along them till close to the opposing army, and then to manœuvre so as to force that enemy to form front to a flank. It will thus be compelled to engage at the greatest relative disadvantage if it determines to fight, and if it escapes by a line still open, the territory it had occupied will be gained without a blow. The commander of an army that feels the grasp of a formidable enemy on its communications, is not in a position which admits of pause or deliberation. His first step must be to concentrate his forces; till that is effected he can only attempt to retreat

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[1] (U.S. Institution,) C.C.C. [2] *Ibid.* [3] *Ibid.*

under penalty of sacrificing all the troops that have not joined him, and the more extended his front the greater will be his danger. But if the concentration be accomplished while the enemy is yet at a distance, his hope of safety must lie in the promptitude of his movements. Whatever course he resolves on, whether to break through the cordon or to evade it, it is indispensable that he should operate with his army entire. To divide his forces for any purpose, will be to play the adversary's game. And the best course will generally be to strike boldly at the communications of the enemy, for a success there may retrieve the campaign. Had Melas moved promptly to the Ticino, he might have been in Milan on the 14th June, while Napoleon was seeking him on the Bormida. And Mack might have recovered his base without loss of credit had he struck with his whole army towards Nuremberg. Still, meet it as he will, a sustained movement against his communications must cause a general to lose ground in the theatre, and to abandon his enterprises, though he save his army.[1]

22. Rivers and hill ranges, which instead of crossing the path of an advancing army are parallel to it, will generally confer a great advantage on that force which possesses the greater facilities for passing from one side to the other.[2]

23. *Menace your enemy's flanks, protect your own, and be ready to concentrate on the important points.*—These maxims contain the whole spirit of Napoleon's instructions to his generals, after Badajos was succoured in 1811. At that time he ordered the army of Portugal to occupy the valley of the Tagus and the passes of the Gredos mountains, in which position it covered Madrid, and from thence it could readily march to aid either the army of the south, or the army of the north. Dorsenne, who commanded the latter, could bring twenty-six thousand men to Ciudad Rodrigo, and Soult could bring a like number to Badajos, but Wellington could not move against one or the other without having Marmont upon his flank; he could not move against Marmont, without having the others on both flanks, and he could not turn his opponent's flanks save from the ocean. If, notwithstanding this combination, he took Ciudad Rodrigo and Badajos, it was by surprise, and because the French did not concentrate on the important points, which proved indeed

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[1] Hamley, Part III., Chap. VII.

[2] Handbook.

his superiority to the executive general opposed to him but in no manner affected the principle of Napoleon's plan. Again, when the preparations for the Russian war had weakened the army of the north, the emperor giving Marmont two additional divisions, ordered him to occupy Castile, not as a defensive position, but as a central offensive one from whence he could keep the Gallicians in check, and by prompt menacing movements, prevent Wellington from commencing serious operations elsewhere. This plan also had reference to the maxim respecting flanks. For Marmont was forbidden to invade Portugal while Wellington was on the frontier of Beira, that is, when he could not assail him in flank; and he was directed to guard the Asturias carefully as a protection to the great line of communication with France; in May also he was rebuked for having withdrawn Bonet from Oviedo, and for delaying to re-occupy the Asturias when the incursion against Beira terminated.

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"Twice," said Napoleon, "has the Duke of Ragusa placed an interval of thirty leagues between his army and the enemy, contrary to all the rules of war; the English general goes where he will, the French general loses the initial movements and is of no weight in the affairs of Spain. Biscay and the north are exposed by the evacuation of the Asturias; Santona and St. Sebastian are endangered, and the guerillas communicate freely with the coast. If the Duke of Ragusa has not kept some bridges on the Agueda, he cannot know what Wellington is about, and he will retire before light cavalry, instead of operating so as to make the English general concentrate his whole army."[1]

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[1] Napier, Vol. V.

CHAPTER II.

SECTION I.

THEATRE OF WAR.

1. The theatre of war comprises all the territory upon which the parties may assail each other, whether it belongs to themselves, their allies, or to weaker states who may be drawn into the war through fear or interest. When the war is also maritime, the theatre may embrace both hemispheres,—as has happened in contests between France and England since the time of Louis XIV. The theatre of war may thus be undefined, and must not be confounded with the theatre of operations of one or the other army. The theatre of a continental war between France and Austria, may be confined to Italy, or may, in addition comprise Germany, if the German States take part therein. Armies may act in concert or separately: in the first case the whole theatre of operations may be considered as a single field upon which strategy directs the armies for the attainment of a definite end. In the second case each army will have its own independent theatre of operations. The *theatre of operations* of an army embraces all the territory it may desire to invade and all that it may be necessary to defend. If the army operates independently, it should not attempt any manœuvres beyond its own theatre, (though it should leave it if it be in danger of being surrounded), since the supposition is that no concert of action has been arranged with the armies operating on the other fields. If, on the contrary, there be concert of action, the theatre of operations of each army taken singly is but a zone of operations of the general field, occupied by the masses for the attainment of a common object.

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In every case, each theatre must have its own base, its own objective point, its zones and lines of operations connecting the objective point with the base, either in the offensive or the defensive.[1]

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[1] Jomini, Chap. III., Art. 17.

2. It is by studying the theatre of war, that the objective points are learnt, and the means which the nature of the ground presents for taking possession of and maintaining them. By the aid of this knowledge operations are combined, that is to say, the way is examined by which it is possible to arrive more certainly at the proposed end, and the result to be expected awaited.[1]

3. These theatres of war may be resolved into theatres of operations, or extent of country upon which two hostile armies can organize their combinations, preserving at the same time, their strategical relations: their limits are more clearly defined than those of the former, being great natural obstacles—such as, the sea, a chain of mountains, a river, or a neutral territory.[2]

Theatre of German War, 1866.

4. Starting from the confluence of the Main with the Rhine at Mayence, following upwards the valley of the former river, skirting the southern slopes of the Thuringian forest, passing along the summits of the Erz-Gebirge, the Kiesen-Gebirge, and the mountains of Moravia, terminating at the southernmost point of Upper Silesia, runs the line which geographically divides Northern from Southern Germany. This line now divided from one another the territories occupied by the troops of the two great parties, into which the Germanic Confederation was rapidly splitting. By the sudden razzia made by her troops into Hanover, Hesse-Cassel, and Saxony, and by surrounding the Hanoverian troops, Prussia secured free communication between her Rhenish provinces and Berlin, disarmed the hostile forces in her rear, and divided the whole of Germany into two distinct areas for military operations. These northern and southern areas, separated by the central geographical line of Germany, were now in possession of the troops of the northern and southern antagonists respectively. The Prussian occupation of Saxony had also the effect of separating the troops of the Southern league quartered on the east of the line of the Saale from those assembled on

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[1] Archduke Charles.

[2] Lendy.

the west, and divided Germany into an eastern and western theatre of war. On the western theatre the Prussian troops which had invaded Hanover and Hesse-Cassel, were ranged against the Hanoverians the Bavarians, the troops of Cassel, and those of the eighth Federal corps. On the eastern theatre the main armies of Prussia were drawn up against that of Austria with its Saxon allies, where they occupied positions in Saxony and Silesia on the one side, on Bohemia and Moravia on the other. Between Bohemia and Saxony, lie the chains of the Iron and Giant Mountains; between Moravia and Silesia, a part of the Giant chain, the mountains of Schweidnitz, and the Sudetic hills. These mountains as a rule are steep towards Prussia, and slope more gently towards Bohemia. They consist of several parallel ridges, and are of very unequal heights, sometimes falling as low as a thousand feet, sometimes raising their peaks high into the air, they tower over spires themselves fifteen hundred feet high. On the west of Bohemia the Fichtel Mountains divide the passes which lead from North Germany into Bohemia from those which by the sources of the Saale lead in the neighbourhood of Hof and Eger into Bavaria. This fact added to the importance and to the value of the Prussian occupation of Saxony, for the presence of the troops of Prince Charles in that kingdom, if it did not entirely prevent, certainly threw great difficulties in the way of a junction between the Austrians and Bavarians, and placed the Prussians in about the advantageous position of having broken the line of the armies of the South German States. The south-western frontier of Bohemia is formed by the Hills of the Bohemian Forest; the south-eastern by the mountains of Moravia. The eastern theatre of operations, lay between the mountains which separate Bohemia and Moravia, from Saxony and Prussia and the Danube. In this theatre two main lines of railway exist, and show the lines along which the troops on either side would draw together, in order to repel an offensive movement of the enemy. The northern line is that which runs from Oderberg by Oppeln, Brieg, Breslau, and Gorlitz to Dresden and Leipzig; the southern is that which leads from Prerau by Olmutz and Pardubitz to Prague. These lines at three points are joined to each other by lines from Dresden to Prague, from Lobau to Turnau, and from Oderberg to Prerau. Within Bohemia lies the important quadrilateral of railways between Prague, Turnau, Josephstadt, and Pardubitz, from which lines lead to Leipzig, Dresden, Berlin, Görlitz, Breslau, Cracow, Vienna, Pilsen, Nüremberg, and Regensburg, and which, in consequence, forms a highly advantageous position for the concentration of troops.[1]

5. The theatre of war, in which the troops of Italy and those of the Austrian Army of the South were about to engage "in 1866," has formed one of the ordinary battle fields of Europe. Its communications with Vienna lay along two lines. The railway which from the capital by way of Trieste runs through Goerz, Udine, Treviso, and Padua to Verona, connects Vienna with the Quadrilateral: and the line by Salzburg, Innsbrüch, Botzen, and Roveredo, although not completed between Innsbrüch and Botzen, afforded a subsidiary line for the supply of troops camped under the protection of the fortresses. The Quadrilateral itself consisted of the strongly intrenched camp of Verona, on the Adige, the smaller and less important fortress of Legnano, on the same river, the lately strengthened fortifications of Peschiera at the issue of the Mincio from the Lago di Garda, and the fortress of Mantua, which lies farther down the Mincio, with its citadel and Fort St. George on the left bank, and its minor works on the right banks of the stream. The fortified Borgo Forte supports the line of the Mincio in Front of the confluence of that river with the Po, while Venice, with many adjacent forts, protected the rear of the Quadrilateral towards the sea.[2]

SECTION II.

ZONE OF OPERATIONS.

1. The general theatre of operations seldom contains more than three zones,—the right, the left, and the centre; and each zone, front of opera-

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[1] Hozier, Vol. I.

[2] *Ibid.* Vol. II.

tions, strategic position, and line of defence, as well as each line of battle, has the same subdivisions,—two extremities and the centre. A direction upon one of these three will always be suitable for the attainment of the desired end. A direction upon one of the two remaining will be less advantageous; while the third direction will be wholly inapplicable.[1]

2. In choosing a zone of operations, select one:—

1st. That will furnish a safe and advantageous base.

2nd. In which the least risk will be run by yourself, while the enemy will be most exposed to injury.

3rd. Bearing in mind the antecedent situations of the two parties.

4th. The dispositions and inclinations of the powers whose territories are near the theatre of war.

One of the zones will always be decidedly bad or dangerous, while the other two will be more or less suitable according to circumstances. The zone and base being fixed upon, the object of the first attempts must be selected. This is choosing an objective of operations. There are two very different kinds: some, that are *territorial or geographical objectives*, refer simply to an enemy's line of defence which it is desired to get possession of, or a fortress or intrenched camp to be captured; *the others on the contrary, consist entirely in the destruction or disorganisation of the enemy's forces, without giving attention to geographical points of any kind.* This was the favourite objective of Napoleon.[2]

3. When the lead is taken in operations, it becomes of the utmost importance to be exactly informed of the nature of the country in front, and still more of the enemy's movements and positions: spies are then of great use, but still less so than partisans thoroughly versed in the art of watching an enemy with small detachments: these should consist of

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[1] Jomini, Chap. III. [2] *Ibid.*

parties of light cavalry added to infantry where the ground will permit. The celebrated Lloyd was remarkable for the talent of conducting these apparently small operations, which, nevertheless, though too much neglected, are often the cause of safety and of victory, and therefore require a careful training, with a selection of the most intelligent officers to command them. It is the best practical school of war.[1]

4. The power meditating the offensive must consider the fitness of the theatre to its own army. If that army have preponderating strength in cavalry, an open country will suit it best; if infantry be its chief reliance, a hilly or wooded region, which may neutralise the enemy's superiority in the other arms; if artillery, good roads and positions which command sufficient expanse of country, will be indispensable to its most effective action. To determine this point a broad and general survey will suffice. But a more intimate acquaintance with the topography of the theatre, and a knowledge of strategy, are required, in order to determine the further questions of what points in that theatre are most important as steps towards the object, and what are the chances of gaining possession of them.[2]

Selection of Zone of Operations.

5 *In every position a general may occupy, he has only to decide whether to operate by the right, by the left, or by the front.* When the general has finally chosen a zone within which to operate with the principal portion of his forces, and when these forces shall be established in that zone, the army will have a front of operations towards the hostile army, which will also have one. Now, these fronts of operations will each have its right, left and centre. It only remains, then, for the general to decide upon which of these directions he can injure the enemy most, for this will always be the best, especially if he can move upon it without endangering his own communications. Finally, when the two armies are in presence of each other upon the field of battle, where the decisive collision is to ensue,

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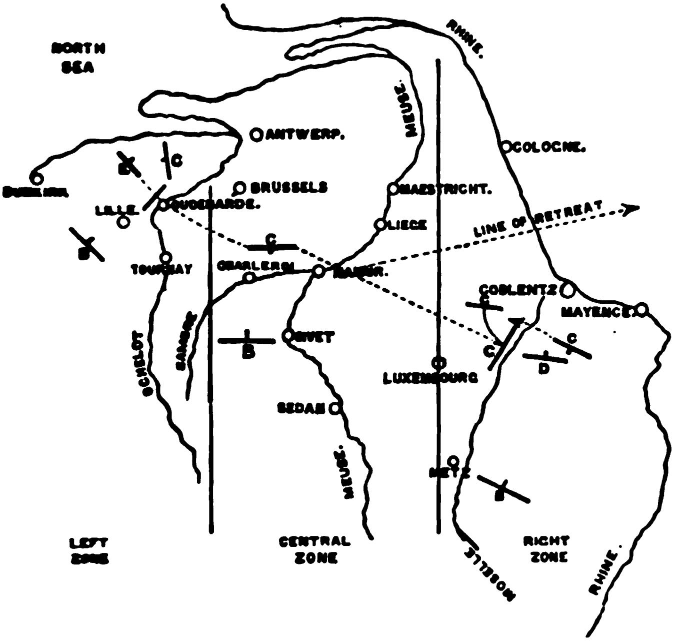
[1] (Aide Mémoire). C.H.S.

[2] Hamley, Part II., Chap. III.

and are upon the point of coming to blows, they will each have a right, left, and centre; and it remains for the general to decide still between these three directions of striking. Let us take as an illustration * * the theatre of operations, between the Rhine and the North Sea.



Although this theatre presents, in one point of view, four geographical sections, viz.: the space between the Rhine and the Moselle, that between the Moselle and the Meuse, that between the Meuse, and the Scheldt, and that between the last river and the sea,—it is nevertheless true that an army of which *AA* is the base and *BB* the front of operations will have only three general directions to choose from; for the two spaces in the centre will form a single central zone, as it will always have one on the right and another on the left. The army *BB*, wishing to take the offensive against the army *CC*, whose base was the Rhine, would have three directions in which to operate. If it manœuvred by the extreme right, descending the Moselle, (toward *D*), it would evidently threaten the enemy's line of retreat toward the Rhine; but he concentrating the mass of his forces toward Luxembourg, might fall upon the left of the army *D* and compel it to change front and fight a battle with its rear towards the Rhine, causing its ruin if seriously defeated. If on the contrary, the army *B* wished to make its greatest effort upon the left (toward *E*), in order to take advantage of the finely fortified towns of Lille and Valenciennes, it would be exposed to inconveniences still more serious than before. For the army *CC*, concentrating in force towards Oudenarde, might fall on the right of *B*, and, outflanking this wing in the battle, might throw it upon the impassable country toward Antwerp between the Scheldt and the sea,—where there would remain but two things for it to do: either to surrender at discretion, or cut its way through the enemy at the sacrifice of half its numbers. It appears evident, therefore, that the left zone would be the most disadvantageous for army *B*, and the right zone would be inconvenient, although somewhat favourable in a certain point of view. The central zone remains to be examined. This is found to possess all desirable advantages, because the army *B* might move the mass of its force towards Charleroi with a view of cutting through the immense front of operations of the enemy, might overwhelm his centre, and drive the right back upon Antwerp and the Lower Scheldt, without seriously exposing its own communications. When the forces are chiefly concentrated upon the most favourable zone, they should, of course, have that direction of movement towards the enemy's front of operations which is in harmony with the chief object in view. For example, if you shall have operated by your right against the enemy's left, with the intention of cutting off the greater portion of its army from its base of the Rhine, you should certainly continue to operate in the same direction; for if you should make your greatest effort against the right of the enemy's front, while your plan was to gain an advantage over his left, your operations could not result as you anticipated, no matter how well they might be executed. If, on the contrary, you had declined to take the left zone, with the intention of crowding the enemy back upon the sea, you ought constantly to manœuvre by your right in order to accomplish your object; for if you manœuvred by the left, yourself and not the enemy would be the party thrown back upon the sea in case of a reverse.[1]

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[1] Jomini.

SECTION III.

STRATEGICAL POSITIONS.

1. Strategic positions are those taken for some time and which are intended to cover a much greater portion of the front of operations than would be covered in an actual battle. All positions behind a river or upon a line of defence, the divisions of the army being separated by considerable distances, are of this class, such as those of Napoleon at Rivoli, Verona, and Legnago to overlook the Adige. His positions in 1813 in Saxony and Silesia in advance of his line of defence were strategic. The positions of the Anglo-Prussian armies on the frontier of Belgium before the battle of Ligny (1814), and that of Massena on the Limmat and Aar in 1799, were also strategic. Even winter quarters, when compact and in face of the enemy and not protected by an armistice, are strategic positions,—for instance, Napoleon on the Passarge in 1807. The daily positions taken up by an army beyond the reach of the enemy, which are sometimes spread out either to deceive him or to facilitate movements, are of this class. * * * In every case the first general rule is that the communications with the different points of the line of operations be thoroughly assured.[1]

2. The essential conditions for every strategic position are that it should be more compact than the forces opposed, that all fractions of the army should have sure and easy means of concentrating, free from the intervention of the enemy. Thus for forces nearly equal, all central or interior positions would be preferable to exterior ones, since the front in the latter case would necessarily be more extended and would lead to a dangerous division of force. * * * * * * *

An army should never long occupy any strategic point without making selection of one or two tactical positions, for the purpose of there concentrating all the disposable force, and giving battle to the enemy when he shall have unveiled his designs. In this manner Napoleon prepared the fields of Rivoli and Austerlitz, Wellington that of Waterloo, and the Archduke Charles that of Wagram. When an army either camps or goes into quarters, the general should be careful that the front be not too extended. A disposition which might be called the strategic square seems best, presenting three nearly equal faces, so that the distance to be passed over would be about equal for all the divisions in concentrating upon the common centre to receive an attack. Every strategic line of defence should always possess a tactical point upon which to rally for defence should the enemy cross the strategic front. For instance, an army guarding the bank of a river, not being able to occupy in force the whole line, ought always to have a position in rear of the centre selected, upon which to collect all his divisions, so as to oppose them united to the enemy when he has succeeded in effecting a passage.[1]

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[1] Jomini, Chap. III., Art. 20.

3. When the masses of an army are posted in a zone of operations, they generally occupy strategic positions. The extent of the front occupied toward the enemy is called the *strategic front.* The portion of the theatre of war from which an army can probably reach this front in two or three marches is called the *front of operations.* The resemblance between these two fronts has caused many military men to confound them, sometimes under one name and sometimes under the other. Rigorously speaking, however, the strategic front designates that formed by the actual positions occupied by the masses of the army, while the other embraces the space separating the two armies, and extends one or two marches beyond each extremity of the strategic front, and includes the ground upon which the armies will probably come in collision.[2]

4. The front of operations being the space which separates the two armies, and upon which they may fight, is ordinarily parallel to the base of operations. The strategic front will have the same direction, and ought to be perpendicular to the principal line of operations, and to extend far enough on either flank to cover this line well. However, this direction may vary, either on account of projects that are formed, or on account of the attacks of the enemy; and it quite frequently happens that it is necessary to have a front perpendicular to the base and parallel to the original line of operations. Such a change of strategic front is one of the most important of all grand manœuvres, for by this means the control of two faces of the strategic field may be obtained, thus giving the army

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[1] Jomini, Chap. III., Art. 20.

[2] *Ibid.*

a position almost as favourable as if it possessed a base with two faces. The strategic front of Napoleon in his march on Eylau illustrates these points. His pivots of operations were at Warsaw and Thorn, which made the Vistula a temporary base; the front became parallel to the Narew from whence he set out supported by Sierock, Pultusk and Ostrolenka, to manœuvre by his right and throw the Russians on Elbing and the Baltic. In such cases, if a point of support in the new direction can be obtained, the strategic front gives the advantages referred to above. It ought to be borne in mind in such manœuvres, that the army should always be sure of regaining its temporary base if necessary; in other words, that this base should be prolonged behind the strategic front, and should be covered by it. Napoleon, marching from the Narew by Allenstein upon Eylau, had behind his left, Thorn, and farther from the front of the army the *tête-de-pont* of Praga and Warsaw; so that his communications were safe, while Benningsen, forced to face him and to make his line parallel to the Baltic, might be cut off from his base, and be thrown back upon the mouths of the Vistula. Napoleon executed another very remarkable change of strategic front, in his march from Gera upon Jena and Naumburg in 1806. Moreau made another in moving by his right upon Augsburg and Dillingen, fronting the Danube and France, and thereby forcing Kray to evacuate the intrenched Camp at Ulm. The change of the strategic front to a position perpendicular to the base may be a temporary movement for an operation of a few days' duration, or it may be for an indefinite time, in order to profit by important advantages afforded by certain localities to strike decisive blows, or to procure for the army a good line of defence and good pivots of operations, which would be almost equivalent to a real base. It often happens that an army is compelled to have a double strategic front, either by the features of the theatre of war, or because every line of offensive operations requires protection on its flanks. As an example of the first, the frontiers of Turkey and Spain may be cited. In order to cross the Balkan or the Ebro, an army would be obliged to present a double front,—in the first case, to face the valley of the Danube; in the second, to confront forces coming from Saragossa or Leon.[1]

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[1] Jomini, Chap. III., Art. 20.

CHAPTER III.

SECTION 1.

STRATEGICAL CONSIDERATIONS AND RULES.

1. At the commencement of a campaign, to *advance*, or *not to advance*, is a matter for grave consideration, but when once the offensive has been assumed, it must be sustained to the last extremity. However skilful the manœuvres, a retreat will always weaken the *morale* of an army, because in losing the chances of success, these last are transferred to the enemy. Besides, retreats cost always more men and *matériel* than the most bloody engagements; with this difference, that in a battle the enemy's loss is nearly equal to your own, whereas in a retreat the loss is on your side only.[1]

2. We will suppose an army taking the field; the first care of its commander should be to agree with the head of the state upon the character of the war; then he must carefully study the theatre of war, and select the most suitable base of operations, taking into consideration the frontiers of the state and those of its allies. The selection of this base and the proposed aim will determine the zone of operations. The general will take a first objective point; he will select the line of operations leading to this point, either as a temporary or a permanent line, giving it the most advantageous direction, namely, that which promises the greatest number of favourable opportunities with the least danger. An army marching on this line of operations will have a front of operations and a strategic front. The temporary positions which the corps d'armée will occupy upon its front of operations, or upon the line of defence, will be strategic positions. When near its first objective point, and when it begins to meet resistance, the army will either attack the enemy or manœuvre to compel him to retreat; and for this end it will adopt one or two strategic lines of manœuvres, which, being temporary, may deviate to a certain degree from the general line of operations, with which they must not be confounded. To connect the strategic front with the base as the advance is made, lines of supply, depôts, &c., will be established.[2]

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[1] Napoleon.

[2] Jomini, Chap. III.

3. Strategical points and lines are inseparable, and exist conjointly; a point is not decisive for military operations, unless accessible for all arms, and a line is not considered as being advantageous, so much as the object to which it leads.[1]

4. The frontiers of States, are either large rivers, or chains of mountains, or deserts. Of all these obstacles to the march of an army, the most difficult to overcome is the desert; mountains come next, and large rivers occupy the third place.[2]

5. It has been taught and published that rivers are lines of operations par excellence. Now, as such a line must possess two or three roads to move the army within the range of its operations, and at least one line of retreat, rivers have been called lines of retreat, and even lines of manœuvre. It would be much more accurate to say that rivers are excellent lines of supply, and powerful auxiliaries in the establishment of a good line of operations, but never the line itself.

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Some authors have represented that high ranges of mountains are, in war, inaccessible barriers. Napoleon, on the contrary, in speaking of the Rhetian Alps, said that "an army could pass wherever a man could put his foot." Generals no less experienced than himself in mountain warfare have united with him in this opinion, in admitting the great difficulty of carrying on a defensive war in such localities unless the advantages of partisan and regular warfare can be combined; the first to guard the heights and to harass the enemy, the second to give battle at the decisive points,—the junction of the large valleys.[3]

6. Whenever an army, which is so confident in its fighting power as to desire to engage the entire concentrated forces of the enemy, possesses the faculty (by reason of an angular base, or of such circumstances of obstacles *),† of striking at its adversary's flank or rear, it enjoys, in that circumstance, an advantage and opportunity which it might vainly seek in manœuvres against the hostile front. By a resolute advance it may even combine the different advantages of forcing the enemy to form front to a flank, and of separating his forces and engaging the parts successively, as will subsequently be seen in the

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† These circumstances alluded to, are discussed in Col. Hamley's operations of war. F.J.S.

[1] Archduke Charles. [2] Napoleon. [3] Jomini, Chap. III., Art. 17.

example of Champaubert.* At any rate, it will be highly advantageous to engage even his whole force in that situation. But if an army be inferior in number, it will manifestly be wiser to seek to separate the hostile forces and engage them separately. For in striking at the flank it may compel that concentration which it should be its great aim to prevent; as Napoleon, would have done, had he turned Wellington's right in Belgium. * * * When the superiority of one army is sufficient, and no more than sufficient, to warrant a detachment against the enemy's rear, the two modes of operation—namely, that of aiming a blow at the communications on the one side, and that of concentrating against a separated force on the other—come into direct opposition; when victory will remain with the general who best appreciates and improves the conditions of the situations.[1]

7. When armies are manœuvring near each other, and the operations are restricted to a narrow space, as in Radetzky's campaign, the assailant can determine with certainty the small area within which he will come in contact with the enemy, and he can so direct his march as, at the same time, to intercept and to close with him. When the Sardinians retreated from Vigevano, the Austrian general might feel assured that he would find them between Novara and Vercelli. But when the turning movement is begun at a distance of several marches from the enemy, no such exact calculation can be made; and if the movement were directed straight on the position of the hostile army, the latter might, by a single march to the rear, evade the blow. On the other hand, if the movement be directed against a point of the communications far to the rear, the assailant on reaching it, must not only spread his forces over a space great in proportion to his distance from the hostile army, in order to close the lines which radiate from that army to its base, but must, by the obliquity of his march, leave a long line of communication open to a counterstroke. * * * *

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To give the greatest effect, * the movement should be directed *not more than a march or two in rear of the rearmost point which it is calculated the enemy can reach by the time it is completed,* giving him credit for obtaining early intelligence and of retreating with promptitude when his resolution is formed, but also taking into account the motives which may induce him to delay to form that resolution. Having reached the point aimed at, it is essential not to await the enemy, but to close upon him with all possible celerity. * * *[1]

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* This example, will be found also in the operations of war. F. J. S.

[1] Hamley, Part IV., Chap. VII.

8. When you are occupying a position which the enemy threatens to surround, collect all your force immediately, and menace *him* with an offensive movement. By this manœuvre you will prevent him from detaching and annoying your flanks, in case you should judge it necessary to retire.[2]

9. When Shah Soojah had been placed on the throne at Caubul, the troops were cantoned at Caubul, Candahar, Ghuznee, and Jellalabad, besides occupying several detached and isolated outposts. None of the divisions were in sufficient strength to defend themselves, and they were at such a distance from one another, that, at the breaking out of the insurrection, all communication between them was cut off. No position had been pointed out for concentration, the consequence of which was, that, as each was successively attacked, it awaited information of the fate of the others previous to deciding on what line of conduct should be pursued, which gave time to the insurgents to defeat each successively.[3]

10. Three great errors were committed by the British general: 1st, His small force being divided, without, at any time, being able to concentrate, if necessary: 2nd, His cantonments being too extensive to be defended, and overlooked by adjacent heights and buildings: 3rd, Not being able to protect his commissariat stores; and, lastly, having no line of retreat secured.[4]

11. It is an approved maxim in war never to do what the enemy wishes you to do, for this reason alone, that he desires it. A field of battle, therefore, which he has previously studied and reconnoitred, should be avoided, and double care should be taken where he has had time to fortify or intrench. One consequence deducible from this principle is, never to attack a position in front which you can gain by turning.[5]

12. Wellington was especially skilful in unravelling the designs of his opponents. "Impenetrable in his own purposes," says the author of

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[1] Hamley, Part III., Chap. VII. [2] Napoleon. [3] Jervis.

[4] Eyre's Caubul. Hough's Army of the Indus, 1838-39. Kaye's Affghanistan.) Jervis.

[5] Napoleon.

the memoirs of Massena, "he divined those of the enemy, and appreciated them justly, though it might be slowly." M. Thiers confirms this judgment by a significant fact. When Massena was before the lines of Torres Vedras, the English Government required Wellington to say whether it might not be possible to withdraw the fleet of transports, which cost upwards of seventy-five millions of francs a-year. The Duke replied, that, "certainly it would be possible, but that, nevertheless, it would be prudent to leave them where they were, though he hoped that he should have no occasion for them." He added, says M. Thiers, and it did the greatest credit to his political intelligence, that probably Marshal Massena would be supported from the side of Castile feebly, from that of Andalusia not at all. Everything fell out as Wellington had foreseen. In 1812, Napoleon and Berthier imagined that the Duke of Ragusa, by assuming an offensive attitude at Salamanca, would hinder Wellington from laying siege to Badajoz. Marshal Marmont appreciating the sagacity of his opponent, replied, that the English general was not to be duped by any such demonstration, and that the only means of saving Badajoz would be to establish three divisions of the army of Portugal in the valley of the Tagus. The event justified the opinion.[1]

13. "The battle of 'Austerlitz' itself, was simply the result of the plan of the campaign in 'Moravia.' In so difficult an art as that of war, the plan of a future battle is often conceived in the plan of a campaign. Only experienced military men will understand this. Those who were with the Emperor heard him say fifteen days before, with regard to the heights and lakes seen when returning from the reconnaissance of Wischau:—Examine all these heights well; it is here, that you will fight, before two months." (*Notes made by a French officer from the report of "Kutusow"*) Already forty leagues distant from Vienna, menaced in rear by the Archduke Ferdinand, who was in Bohemia, on the left flank by Prussia, whose hostile intentions became each day more apparent, and upon the right flank by the Archduke Charles, who was advancing towards "Hungary" by forced marches; Napoleon could no longer continue his offensive march into Moravia. The Austro-Russian army occupied an excellent position at Olmütz, but its provisions were beginning to fail. The arrival of the Emperor Alexander, and some

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[1] Gleig.

corps of Buxhœwden and of the Russian Guard, seemed to be the signal for offensive movements. The French troops, fatigued by the long marches which they had just performed so rapidly, stood in need of rest. All these reasons explain the plan adopted by the Emperor, of allowing his enemies to offer him battle, upon the ground he himself had studied and chosen.[1]

14. The position of Olmütz, occupied by the allied army, was very good and almost unassailable. The arrival of the Archduke Charles, with the 80,000 men, whom he was leading from Italy, could have been waited for there. Prussia, who had just declared herself, would have had time to send her army into Bohemia. This power demanded the delay of a month. In consequence of the improvidence of the Austrians and the rapidity of the campaign, there was an absolute dearth of provisions at Olmütz, and there was no magazine in Moravia. From the commencement, recourse had been made to forced requisitions. In the Austro-Russian army, some thought that under the circumstances it would be best to gain time. It was necessary, they said, to wait for the junction of the Archduke Charles; provisions could be found in Hungary. They added, that the distance of Napoleon from his base of operations would thus be increased. It was unlikely then that they would be followed up, and, even if they were, they would be in the proportion of two to one. The advisers of the Emperor Alexander, thought, on the other hand, that the stationary attitude of Napoleon, so contrary to his character, plainly indicated how difficult and hazardous his position was. It was, they said, a favourable opportunity for putting an end to the war, and it was necessary to take advantage of it speedily, lest it should escape. The latter counsels prevailed. The Austro-Russian army quitted Olmütz on the 27th November, for Brünn, without even waiting for the arrival of the corps of General Essen, who was but a few marches off.[2]

15. 'Previous to the battle of Austerlitz,' Napoleon put in practice this rule, which he himself gives in his memoirs: "When you have resolved to fight a battle, collect your whole force, dispense with

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[1] Ambert. [2] *Ibid.*

nothing. A single battalion sometimes decides the day." Napoleon had carefully arranged for the concentration of 40,000 men at 'Vienna,' or 65,000 at 'Brünn,' according as circumstances should permit. The Russians, on the contrary, attacked the French without waiting for General Essen, who was only a few days' march distant, and who was bringing with him nearly 10,000 men.

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The allies did exactly what Napoleon had wished.[1]

16. No force should be detached on the eve of a battle, because affairs may change during the night, either by the retreat of the enemy, or by the arrival of large reinforcements to enable him to resume the offensive, and counteract your previous dispositions.[2]

17. Sometimes a general, too much preoccupied with the idea of a success for which he hopes, makes in advance, without having beaten the enemy, arrangements for giving a grand result to victory. To this end, he divides his forces and launches them in different directions. Instead of conquering he is beaten. The detachments he has sent out are captured or destroyed, and a campaign opened under favourable auspices, is now but a succession of reverses.[3]

18. In 1796, in Italy, Wurmser entered upon the campaign with an army superior to that of the French; a column turned the French flank, and marched by Brescia, upon their communication. This column, too weak to resist the united French force, retired upon its approach. Separated from the greater part of the army, by the mountains and the Lago di Guarda, it was ignorant of the events which were transpiring, and the French army, placed in the centre, beat, one after the other, all the corps which successively presented themselves. In the same year 1796, General Alvinzi debouched from the Tyrol, and attacked the French army, occupying the chain of Monte Baldo and the Corona. Believing a victory certain, he detached a body of five thousand men, commanded by Colonel Lusignan, who, after having followed the border of the Lago di Guarda, changed direction, approached the Adige, and took position in rear of the French army, and on its direct line of communication. This corps was held in check by the weak division of Rey, who, having rejoined the army, established himself in front of it. The battle was

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[1] Ambert. [2] Napoleon. [3] Marmont.

gained by the French army, and the corps of Lusignan attacked, routed, and almost entirely captured. In 1800, Napoleon debouched into Italy with an army of sixty thousand men. Having crossed the Po, and completely turned the Austrian army, he found himself upon their lines of communication, with the design to take possession of all the roads by which they might attempt to retire. To achieve that he placed on the Tessino a part of his force on the right bank of the Po, while, of necessity, he sent upon the Adda and Oglio one division to cover himself in that direction. Then, supposing that the Austrian army, united, would desire to make its retreat upon Genoa, he detached a division in the direction of Novi, to shut that route against him. There only remained to him twenty-two thousand men, and the enemy had forty-five thousand united on the Bormida. The enemy attacked him; the battle of Marengo was fought; obstinately disputed, it seemed lost at five o'clock, p.m., when the division detached towards Novi arrived. General Desaix, who was at its head, had wisely halted it, on hearing the cannon of the battle, to await orders. He retraced his steps, and arrived in time to act as a reserve, and the battle was gained, although only 27,000 men had been at one time in action, and 22,000 had been forced to bear the entire weight of the battle. Thus, the French forces engaged were, on this occasion, only two-thirds of the enemy's force; and it was a bare chance that made them more than one-half. A splendid victory, doubtless, the results of which were immense, but it would be dangerous to take as a model the strategic combinations which led to it; for it ought to have been lost, on account of the superiority of force and the means which opposed us.[1]

19. No account of the great day of Waterloo could be complete which did not speak, and speak plainly, of the strategical error with which Wellington is charged, in leaving 18,000 of his troops detached to his right at Hal and Tubize, thereby wilfully reducing his army to a numerical inferiority to that of Napoleon. * * * The Duke's conduct must be judged on its own merits, and it is sufficient here to say that all continental critics (with one exception) agree in condemning it absolutely: that the best of the recent English professional writers to the full agree with them: and that Müffling, in attempting faintly to excuse it, has only done so by elaborately proving that the troops thus detached could have equally well observed the Hal road had they been stationed behind the Senne two hours nearer to Waterloo from Hal, and that, at any rate, they should have been called in so as to arrive on the 18th by noon. This being the best defence in support of the Duke's peculiar view, which led him to guard himself in the direction of his communications at a present risk of sacrificing the real object of the day, we may conclude, unhesitatingly, by subscribing to the broad assertion of Kennedy, that 'Wellington ought certainly to have had Colville, with the force under his command on the field of battle.' It may be urged in opposition to this view, that Wellington knew himself able to maintain his ground without the troops detached. But Wellington could not have possibly known that morning that Napoleon would grant the Prussians five hours' fair start, nor that he would withdraw 16,000 of the French from his attacking force to meet them, instead of pressing on his reserves at an earlier part of the day. The presence of Colville's brigades might have kept the British line from that 'critical' hour which all continental eye-witnesses declare to have occurred before Zieten came up. On the other hand it may well be remarked, that this blot is the single one of several once charged against Wellington for that day's conduct, which time has not cleared away.[1] * * * *

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[1] Marmont.

Assailing a weak point with superior numbers.

20. With the purpose of dispersing the forces of the enemy, we must harass him particularly upon those points essential to his safety, and promptly seize the moment in which he has yielded to our feints, to attack him upon a weak point with superior numbers. This is just what is called a feint in fencing phrase, with the sword in hand, in single combat. Two or three slight partial advantages open the way for the more considerable ones which decide the fate of the campaign. It is thus seen how important it is for a general to assume the initiative in movements: thus he overrules the design of his enemy, and a first success frequently gives an ascendancy which is never lost. But the favourable moment must be clearly discerned. Too great a disproportion

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[1] Chesney, Lecture VI.

in force and in the various means, would be an insurmountable obstacle. We should wait until the confidence of the enemy leads him into error. Profiting diligently by the occasion when offered, the skilful general may thus obtain an advantage which will permit him to turn the tables on his adversary, and to pass from defensive to offensive. This is what happened, remarkably, in 1796, in the immortal campaign of Italy. The French army, having arrived at the frontiers of the Tyrol, and in a defensive position, found itself much inferior to the Austrian army, augmented as it was by the reinforcements led by Wurmser in person. The enemy's general in attacking, had divided his forces; the French general re-united his own, and soon a first success enabled him to assume the offensive in turn. Afterwards a series of victories succeeded, in combats where the French army was almost always superior in numbers on the field of battle. To sum up, in one word, this division of the art of war, which applies to the general movements of armies; it should be observed, that it is always founded upon a calculation of time, distance, and celerity of movement.[1]

21. 'During the late civil war in North America,' General Jackson, was quartered in the Shenandoah valley with about 15 or 20,000 men. Opposite to him was a Northern army entering the valley from Harper's Ferry under General Banks; another army, under General Fremont, on the west side; and another army, just on the east side of Manassas Gap, under General Siegel. General Jackson, descending the valley rapidly first encountered the heads of General Fremont's column near this point. * * General Jackson, retreated rapidly for a day or two, until he had drawn the head of Fremont's army away from the main body, and then he fell on that and defeated it. The two generals, Milroy and Shenck, were beaten, and fell back on Fremont; and Fremont, who had just sent off despatches to Washington announcing a victory, was very glad to get over the mountains and make his escape. He was disposed of for a few days. Jackson proceeded down the valley, and moving rapidly on Manassas Gap, fell on a detachment of General Banks's troops, and defeated them. General Banks, who was down at Winchester, hearing of what had happened, came up speedily, and tried to support his unfortunate detachment. He met with Jackson under

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[1] Marmont.

disadvantageous circumstances, and was beaten on the two days following, the 24th and 25th of May, and was driven right over the Potomac into Washington.[1]

22. 'During the continental war, in 1866,' * * like the two invading armies in Bohemia, so the two foes of Austria,—Prussia and Italy,—on a greater scale, were assailing her on a double line. In all circumstances the rule must hold, that the defender in such a case ought not, except with forces superior to both, to attempt to make head against both attacks. The policy of retarding the advance of one enemy, and operating in force against the other, is the only decisive mode of operation. For this reason 'Colonel Hamley' maintained, before hostilities began, that Austria should at first have taken that step which circumstances afterwards forced on her, and, withdrawing all the forces disposable for the field, should have held only her fortresses and mountain-passes; secure that, when once she had crushed her German foe, she could always, by Verona, issue upon the Italian army in Venetia and drive it over the Po.[2]

SECTION II.

OFFENSIVE AND DEFENSIVE WARFARE.

1. Movements in war, whether offensive or defensive, must always be based upon a calculation of time and distance. But the applications of this principle are easier in defensive than in offensive war. In the latter the operations are vaster, the conditions more variable, the elements of the calculation more uncertain. At any moment one may be forced to change his part, to abandon an attack in order to defend himself and to escape great perils. There is needed, therefore, a greater genius, to be always ready to vary his projects, to execute new combinations. In a defensive war, the theatre is more contracted; the operations are upon familiar ground, the nature of which may be exactly appreciated. The

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[1] (U.S. Institution), C.C.C.

[2] Blackwood's Mag.

combinations being less in number, it is easier to arrange for them and to confront them. In offensive war, genius must supply the want of experience, and guess at the character of the country in which the operations are made: the points of support upon which we count, vary and sometimes disappear. In defensive war, we act upon a field prepared and studied; we have fixed pivots of operation; everything may be calculated with precision. A superior genius is then more necessary for offensive war, while a great knowledge of the profession, the talent to choose judiciously the points of support, an extreme foresight, with indefatigable activity, may suffice for the needs of defensive war. Nevertheless this kind of war is far from being easy, because properly speaking, a general is only reduced to act on the defensive when the means at his disposal are inferior to the enemy. Now, in modern wars, with equality of arms, instruction and experience, numbers are of chief avail.[1]

2. In a military point of view, the offensive has its good and its bad side. Strategically, an invasion leads to deep lines of operations, which are always dangerous in a hostile country. All the obstacles in the enemy's country, the mountains, rivers, defiles and forts, are favourable for defence; while the inhabitants and authorities of the country, so far from being the instruments of the invading army, are generally hostile. However, if success be obtained, the enemy is struck in a vital point; he is deprived of his resources and compelled to seek a speedy termination of the contest. For a single operation, which we have called the taking the *initiative*, the offensive is almost always advantageous, particularly in strategy. Indeed, if the art of war consists in throwing the masses upon the decisive points, to do this it will be necessary to take the initiative. The attacking party knows what he is doing and what he desires to do; he leads his masses to the point where he desires to strike. He who awaits the attack, is everywhere anticipated: the enemy fall with large force upon fractions of his force; he neither knows where his adversary proposes to attack him, nor in what manner to repel him. Tactically, the offensive also possesses advantages, but they are less positive, since, the operations being upon a limited field, the party taking the initiative cannot conceal them from the enemy, who may

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[1] Marmont.

detect his designs, and by the aid of good reserves cause them to fail. The attacking party labours under the disadvantages arising from the obstacles to be crossed before reaching the enemy's line; on which account the advantages and disadvantages of the tactical offensive are about equally balanced. Whatever advantages may be expected either politically or strategically from the offensive, it may not be possible to maintain it exclusively throughout the war; for a campaign offensive in the beginning may become defensive before it ends.[1]

3. The offensive confers, at the outset, the power of concentrating on the flank or centre of the enemy's line of defence, and so turning or breaking it. The defender must either oppose the enemy with an inferior force at first, or abandon territory in order to assemble his forces at some point farther back. On the other hand, offensive war demands great resources, and success itself, if not absolute and decisive, entails fresh difficulties on the invader. And when he has penetrated far within the defender's territory, the situations of the antagonists differ greatly, inasmuch as the army on the offensive is bound to its base, be that base wide or narrow, while the defensive forces may base themselves on any part of their territory which will supply them, and which their front protects.[2]

4. It is evident, that when one belligerent power feels secure behind an unassailable frontier, and holds many issues into the enemy's territory, either by command of the sea or otherwise, it can assemble its forces unknown to its antagonist upon some point selected by itself, from whence to make an eruption into the theatre of war. And if the belligerents be divided only by a frontier line,—a river such as the Rhine or Potomac, or a mountain range such as the Alps—the army that passes it will nearly always find itself immensely superior to the force that can immediately interpose. For the defender's army has by the conditions of the defensive been spread so as to guard all possible avenues by which the attack might be made. Thus, in the Waterloo campaign, Wellington and Blucher, being on the defensive, were guarding all the roads from the French frontier into Belgium, along a front of a hundred miles. Napoleon suddenly assembled his whole army upon the centre of their line, and, on first entering Belgium, was

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[1] Jomini, Chap. III., Art. 16.

[2] Hamley, Part II., Chap I.

greatly superior to any force which the opposing generals could interpose between him and his object, Brussels. In the American civil war, Richmond being the point aimed at by the principal Northern army, the Federals could, behind the screen of the Potomac, concentrate their forces and advance either from the Upper Potomac down the Shenandoah Valley; from Washington along the Orange Railroad to the Rappahannock; from Acquia Creek by the Fredericksburg and Richmond Railway, by the Peninsula between the York and James rivers, adopting either streams as a base; or from the south side of the James river by Petersburg. They used all of these lines, and frequently advanced, at first with numbers greatly superior to those which the Confederates could assemble to oppose them. Thus, the great advantage conferred by the offensive, is the *Power of Concentration.*[1]

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5. The great road from Charleroi to Brussels runs, nearly due north. At the point now known as Quatre Bras (but called Trois Bras in old maps), which is thirteen miles from Charleroi and twenty-one from Brussels, it crosses another chaussée running from Nivelles eastward to Namur. Another main road leaves it just out of Charleroi, and passing by Fleurus, strikes at a like distance from the former place the same Namur-Nivelles road at Sombreffe, eight miles east from Quatre Bras. That point, with Sombreffe and Charleroi, mark thus a triangular piece of ground, which we shall call the Fleurus triangle, of vital importance to Napoleon's future operations, the Namur-Nivelles road being the chief communication between the allied armies. Long since, the English and Prussian chiefs had recognised this, and the danger of their being separated, should the French seize that road to Quatre Bras and Sombreffe. At a meeting held by them at Tirlemont on the 3rd May, they had discussed the possibility of the enemy's advance through Charleroi in such an attempt to sever their armies, and had agreed as to the movements to be undertaken to counteract so dangerous an attack. The Prussian army was to assemble between Sombreffe and Charleroi; the English, between Marchiennes and Gosselies, a village on the Charleroi-Brussels road, four miles from the former place, and the junction point of a cross road from the Sambre at Marchiennes. Had

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[1] Hamley, Part II., Chap. I.

these positions been attained, the allied armies would have nearly touched, and have guarded all the approaches from the Sambre into the Fleurus triangle, so that whichever one Napoleon attacked would be aided by a flank attack upon him by the other. Such were the allied views beforehand. Yet, at three p.m., on the 15th, but one Prussian corps was near the ground, and saving one division (Perponcher's Dutch Belgians), not a man of Wellington's army within reach of it, whilst the head of a column of 40,000 Frenchmen had passed the Sambre at Marchiennes, and that of another of nearly 70,000 was entering Charleroi.[1]

6. Though the Russian forces at the period of the invasion, 'by Napoleon, in 1812,' were highly disciplined, and equal in quality, but not in numbers, to the enemy, yet they were dispersed along the right bank of the Niemen, and not in an attitude to admit of prompt concentration. This disadvantage was the consequence of awaiting an invasion in force, along an extensive line of frontier, practicable and menaced at all points, and of which they never could have expected to dispute the passage, since the initiative rested with the enemy. They might have adopted measures to discover his intentions while their own corps remained sufficiently in the rear, that is, at a distance proportionate to the extent of front to be covered; this would have enabled them to concentrate their forces at the proper strategic point, without the risk of committing a false movement.[2]

Extracts from Notes dictated by Napoleon, from St. Cloud, on the Affairs of Spain, in August, 1808.

7. "Dans la position de l'armée d'Espagne on a à craindre d'être attaqué sur le droite par l'armée de Galice, sur le centre par l'armée venant de Madrid, sur le gauche par l'armée venant de Saragosse et Valence. Ce serait une grande faute que de laisser l'armée de Saragosse et de Valence prendre position à Tudela.

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[1] Chesney, Lecture III.

[2] Cathcart.

"Tudela doit être occupé, parceque c'est une position honorable, et Milagro une position obscure.

"Tudela est sur les communications de Pampelune, a un beau pont en pierre, est l'aboutissant d'un canal sur Saragosse. C'est une position offensive sur Saragosse telle que l'ennemi ne peut pas la négliger ; cette position seule couvre la Navarre. En gardant Tudela, on garde une grande quantité de bateaux, qui nous seront bientôt nécessaires pour le siége de Saragosse.

"Si l'ennemi était maître de Tudela, toute la Navarre s'insurgerait, l'ennemi pourrait arriver à Estella, en negligeant la position de Milagro et en coupant la communication avec Pampelune.

"Le général qui commande à Tudela peut couvrir les hauteurs de redoutes ; si c'est une armée d'insurgés, s'en approcher et la battre, la tenir costamment sur le defensive par les reconnoissances et ses mouvemens sur Saragosse.

"Et si, au lieu de cela, une partie de l'armée de ligne Espagnole marchait sur Tudela, le général Français repassera l'Ebre, s'il y est forcé, disputera le terrein sur Pampelune, et donnera le tems au général en chef de l'armée Française de prendre ses mésures. Ce corps d'observation remplira alors son but, et aucune opération prompte sur Tolosa ni Estella n'est à craindre. Au lieu qu'en occupant la position de Milagro, l'ennemi sera à Estella, le même jour qu'on l'apprendra au quartier général. Si on occupe Tudela, il faut s'y aider de redoutes, et s'y établir, n'y conserver aucune éspèce d'embarras, et les tenir tous dans Pampelune. Si l'ennemi l'occupe, il faut l'en chasser, et s'y établir ; car dans l'ordre défensif, ce serait une grande faute, qui entrainerait de fâcheuses consequences.

"La position de Burgos était également importante à tenir, comme ville de haute réputation, comme centre de communication et de rapports. Delà des partis non seulement de cavalerie, mais encore de deux ou de trois mille hommes d'infanterie, et même quatre ou cinq mille hommes en échelons peuvent poster les premières patrouilles d'housards dans toutes les directions jusqu'à deux marches, et parfaitement informés de tout ce qui ce fait, en instruire le quartier général, de manière que si l'ennemi se présente en force sur Burgos, les différentes divisions puissent à temps s'y porter pour le soutenir et livrer la bataille, ou si cela n'est pas jugé convenable, éclairer les mouvements de l'ennemi, lui laisser croire qu'on veut se porter sur Burgos, et pouvoir ensuite faire sa retraite pour se porter ailleurs.

"Un corps de douze à quinze mille hommes ne prend il pas vingt positions dans la journée au seul commandement d'un adjudant major? et nos troupes seraient elles devenues des levées en masse, qu'il faudroit placer quinze jours d'avance dans les positions où on voudroit qu'elles se .battent?

"'Vous n'avez rien à craindre; portez vous ailleurs, nous avons fait nos dispositions pour aller plus loin, ou bien nous avons choisi un champ de bataille pour nous battre; venez ici, vous ne craignez pas d'être inquiétes.' Mais que fera le général Français, si l'on marche demain sur Burgos? laissera-t-il prendre par 6,000 insurgés la citadelle de cette ville, ou si les Français ont laissés garnison dans le château (car on ignore la position et la situation de l'armée), comment une garnison de 4, 6, ou 800 hommes se retira-t-elle dans une si vaste plaine? Et des lors c'est comme s'il n'y avoit rien; l'ennemi maître de cette citadelle, on ne la reprendra plus.

"En résumé, la position de Burgos devait être gardée; tous les jours à trois heures du matin on devait être sous les armes, et à une heure du matin il devait partir des reconnaissances dans toutes les directions. On devait ainsi recueillir des nouvelles à huit ou dix lieux à la ronde, pour qu'on peut prendre ensuite le parti que les circonstances indiqueraient.

"La position de Burgos, tenue enforce et d'une manière offensive, menace Palencia, Valladolid, Aranda, Madrid même. Il faut avoir longtems fait la guerre pour la concevoir; il faut avoir entrepris un grand nombre d'operations offensives pour savoir comme le moindre événement ou indice encourage ou décourage, décide une opération ou une autre.

"En deux mots, si 15 mille insurgés entrent dans Burgos, se retranchent dans la ville, et occupent le château, il faut calculer une marche de plusieurs jours pour pouvoir s'y poster et reprendre la ville; ce que ne sera pas sans quelque inconvenient.

"Quand on tiens à Burgos de la cavalerie sans infanterie, n'est ce pas dire à l'ennemi qu'on ne veut pas y tenir; n'est ce pas l'engager à y venir? Burgos a une grande influence dans le monde par son nom, dans la Castille parceque c'en est la capitale, dans les opérations parcequ'elle donne une communication directe avec St. Ander. Il n'est pas permis à 300 lieues, et n'ayant pas même un état de situation de l'armée, de prescrire ce qu'on doit faire; mais on doit dire que si aucune force majeure ne l'empêche, il faut occuper Burgos et Tudela.

"Si la position de Tudela est occupée par l'ennemi, ou ne voit pas que l'Ebre soit tenable. Comment a-t-on évacué Tudela, lorsqu'on avait mandé dans des notes précédentes qu'il fallait garder ce point, et que l'opinion même des généraux qui venaient de Sarragosse étaient d'occuper cette importante position.

"Tudela est importante sous plusieurs points de vue: il a un point sur l'Ebre, et protège parfaitement la Navarre: c'est le point d'intersection du canal qui va à Sarragosse.

"La première opération qui doit faire l'armée lors-qu'elle reprendra son système d'offensive, et qu'elle sera forte de tous ses moyens, ce doit être d'invester et de prendre Sarragosse; et si cette ville resiste comme elle l'a fait la première fois, en donner un example qui retentisse dans toute l'Espagne.

"Une troisième opération qui serait utile serait l'occupation de St. Ander. Il serait bien avantageux qu'elle put ce faire par la route directe de Bilbao à St. Ander. Il faut s'occuper de désarmer la Biscaye et la Navarre; c'est un point important; tout Espagnol pris les armes à la main doit être fusillé. Il faut veiller sur la fabrique d'armes de Palencia, ne point laisser travailler les ouvriers pour les rebelles. La fort de Pancorvo doit être armé et fortifié avec la plus grande activité. Il doit y avoir dans ce fort des fours, des magazins de bouches et de guerre. Situé presqu'à mi-chemin de Bayonne à Madrid, c'est une poste intermediare pour l'armée, et un point d'appui pour les opérations de la Galicie."[1]

French invasion of the Peninsula.

8. With astonishing activity, and when we consider the state of his political relations on the continent, we may add, with astonishing boldness, the French emperor when invading Spain, first collected ample means to attain his object; then deceiving his enemies with regard to his numbers, position, and intentions, and choosing his time with admirable judgment, he broke through the weak part of their line, and seized Burgos, a central point, which enabled him to envelope and

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[1] Napier, Vol. I.

destroy the left wing of the Spaniards before their right could hear of his attack, the latter being itself turned by the same movement, and exposed to a like fate. This position also enabled him to menace the capital, to keep the English army in check, and to cover the formation of those magazines and stores which were necessary to render Burgos the base and pivot of further operations. Napoleon's forces were numerous enough to have attacked Castanos and Palafox, while Blake was being pursued by the first and fourth corps; but trusting nothing to chance, he waited for twelve days, until the position of the English army* was ascertained, the strength of the northern provinces quite broken, and a secure place of arms established.[1]

9. The dispositions made by Napoleon (after the fall of Madrid) indicated a vast plan of operations. It would appear that he intended to invade Gallicia, Andalusia, aud Valencia, by his lieutenants, and to carry his arms to Lisbon in person. Upon the 20th December the sixth corps, the guards, and the reserve, were assembled under his own immediate control. The first corps was stationed at Toledo, but the light cavalry attached to it scoured the roads leading to Andalusia, up to the foot of the Sierra Morena. The fourth corps was at Talavera, on the march towards the frontier of Portugal. The second corps was on the Carrion river, preparing to advance against Gallicia. The eight corps was broken up; the divisions composing it ordered to join the second, and Junot who commanded it, repaired to the third corps, to supply the place of Marshal Moncey, who was called to Madrid for a particular service; doubtless an expedition against Valencia. The fifth corps which had arrived at Vittoria, was directed to reinforce the third, then employed against Saragossa. The seventh was always in Catalonia.[2]

10. The secret of Wellington's success "in 1812" is to be found in the extent of country occupied by the French armies, and the impediments to their military communications. Portugal was an impregnable central position, from whence the English general could rush out unexpectedly against any point. This strong post was however of his own making, he had chosen it, had fortified it, had defended it, he knew its full value and possessed quickness and judgment to avail himself of

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* Advancing under Sir John Moore, from Portugal to Sahagun. F.J.S.

[1] Napier. [2] *Ibid.*

all its advantages; the battle of Salamanca was accidental in itself, but the tree was planted to bear such fruit, and Wellington's profound combinations must be estimated from the general result. He had only sixty thousand disposable troops, and above a hundred thousand French were especially appointed to watch and control him, yet he passed the frontier, defeated forty-five thousand in a pitched battle, and drove twenty thousand others from Madrid in the greatest confusion, without risking a single strategic point of importance to his own operations. His campaign up to the conquest of Madrid was therefore strictly in accord with the rules of art, although his means and resources have been shewn to be precarious, shifting and uncertain.[1]

Wellington's opinion respecting the proposed offensive operations in France, in 1815.

11. In regard to offensive operations my opinion is, that, however strong we shall be in reference to the enemy, we should not extend ourselves further than is absolutely necessary, in order to facilitate the subsistence of the troops. I do not approve of an extension from the channel to the Alps; and I am convinced that it will be found not only fatal, but that the troops at such a distance on the left of our line, will be entirely out of the line of operations. We are now or shall be shortly placed on the French frontier in the form of an *échelon*, of which the right is the most advanced of the *échelon*, and the left upon the Upper Rhine, is the most retired. Paris is our object, and the greatest force and greatest military difficulties are opposed to the movement of the right, which is the most advanced part of our general line. Indeed, such force and difficulties are opposed to us in this part, that I should think that Blucher and I cannot move till the movements of others of the allied corps shall have relieved us from part of the enemy's force opposed to us. Then it must be observed that we cannot be relieved by movements through Luxembourg. In my opinion, then, the movement of the allies should begin with the left, which should cross the Rhine

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[1] Napier.

between Basle and Strasbourg. The centre collected upon the Sarre should cross the Meuse on the day the left should be expected to be at Langres. If these movements should not relieve the right they should be continued; that is to say, the left should continue its movement on both banks of the Marne, while the centre should cross the Aisne; and the distance between the two bodies, and between each and Paris, should be shortened daily. But this last hypothesis is not probable; the enemy would certainly move from this front upon the earliest alarm of the movements on the upper Rhine; and the moment he did move, or that the operation should be practicable, Blücher's corps and mine should move forward, and the former make the siege of Givet, the latter of Maubeuge; and the former likewise to aid the movement of the centre across the Meuse. If the enemy should fall upon the centre, it should either retire upon Luxembourg or fight according to the relative strength; and in either case Blücher should act upon the enemy's communication upon the Aisne. But the most probable result of these first movements would be the concentration of the enemy's forces upon the Aisne; and accordingly we hear of the fortifications of Soissons and Laon, of an intrenched camp at Beauvais, &c., &c. We must in this case, after the first operation, throw our whole left across the Marne, and strengthen it if necessary from the centre, and let it march upon Paris, between the Seine and the Marne, while the right and the centre should either attack the enemy's position upon the Aisne or endeavour to turn its left; or the whole should co-operate in one general attack upon the enemy's position. I come now to consider the strength required for the operations. The greatest strength the enemy is supposed to have is 200,000 effective men, besides national guards for his garrisons. Of this number it can hardly be believed that he can bring 150,000 to bear upon any one point. Upon this statement let our proceedings be founded. Let us have 150,000 men upon the left, and 150,000 men upon the right; and all the rest whatever thay may be in the centre, or after a sufficient centre is formed, let the remainder be in reserve for the right, left, or centre, as may be most convenient for their march and subsistence, and I will engage for the result, as they may be thrown where we please. Let us begin when we shall have 450,000 men. Before the Austrians upon the left shall be at Langres, the Russians will have passed the Rhine, and the whole

Prussian army will be in line. These are my general ideas, which I do not think differ much from Knesebeck's. Mind, when I think of the siege of Givet and Maubeuge, I do not mean by the whole of the two armies of the right, but to be carried on by detachments from them. The centre should seize Sedan, which is not strong or garrisoned, and observe Longvy, Thionville, and Metz. The left will have to observe Huningue and the fortresses in Alsace.[1]

Invasion of the Austrian territories, in 1866.

12. 'In the war of 1866,' an invasion of the Austrian dominions, from the positions of the Prussian armies could be effected in two ways; by the first the armies could cross the north-eastern and north-western frontiers of Bohemia, and be directed to unite in the north of Bohemia. By the second plan, the Elbe Army and the First Army could have been ordered to cross the frontier, and to move on Prague, while the second made an offensive movement against Olmütz. The latter plan, was considered too dangerous; by its prosecution the communications between the two armies would have been entirely broken; and if Benedek had ignored the Second Army he could have fallen with much superior forces on Prince Frederick Charles, and overthrown him, when the distance from Olmütz to Vienna would not have been less than that from Josephstadt to Berlin. The first plan was accordingly adopted. * * *

The First Army and the Army of the Elbe were to unite near the Iser, and to gain together the left bank of that river towards Gitschin. The Second was to gain the right bank of the Elbe. When these points were gained, the two armies would be in close communication, and could act in conjunction along the line of railway leading by Pardubitz and Brünn to Vienna. The distance from Schluckenau to the county of Glatz, along which the Prussian front extended, is about one hundred miles. The Army of the Elbe and the First Army, which were to move through passes only about thirty or thirty-five miles distant from each other, could unite on the Iser in four marches, and immediately assail the enemy with four and a half corps d'armée, if the Austrians attempted to make an offensive movement towards Silesia. The circumstances of the country, and the strategical situation, threw more difficulties in the way of the Second Army during its defiling through the mountains, and there was considerable danger that it might be attacked, while still isolated. On this account the Army of Silesia was made stronger by one corps d'armée than the First Army, and was to commence its movements four days later, so as to allow the Austrian attention to have been distracted by the presence of Prince Frederick Charles in Bohemia, and to permit of the complete junction of the First Army and of the Army of the Elbe on the Iser.[1]

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[1] Wellington Disp.

Movement of the Russians on Constantinople, in 1829.

13. "After the passage of the Balkan in 1829, and the capitulation of the ancient capital of European Turkey, to the Russian army;" by opening a communication beyond his left flank with the fleet at Bourgas, General Diebitsch would have obtained the supplies requisite for a forward movement 'of the Russian Army on Constantinople,' which if successful, might have enabled him to complete his brilliant march by occupying the long coveted shores of the Bosphorus and the seat of the Constantines, and in case of a reverse, he could either have retraced his steps by endeavouring to recross the Balkan, or have made a flank movement for the purpose of reaching one of the fleets. The Euxine fleet was on one side of his line of march, and on the other, that which had so long menaced the Sultan's territories by blockading the Dardanelles. General Diebitsch felt that there was no middle course between bringing about peace and the destruction of his army; and his critical situation caused such anxiety at St. Petersburgh, that the Emperor Nicholas not only ordered a fresh levy of ninety thousand men, but also made arrangements to obtain a loan of forty two millions of florins in Holland, to prosecute the war in case the mission of Baron Müffling to Constantinople should fail to bring about peace. Like Cortes, under somewhat similar circumstances, the Russsian commander

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[1] Hozier, Vol. 1.

determined to risk everything by taking a bold course; and, as in the case of the Spanish adventurer, circumstances favoured his demonstration which was projected with a view to second the efforts of the Russian envoy in the capital, by intimidating the divan.[1]

14. It was under these particular circumstances and with an effective force of about twenty-one thousand men, that a demonstrative advance was commenced on three points. The extreme left, with the support of the fleet, captured different places on the shore of the Black Sea as far as Midiah; which place, only sixty miles from the entrance of the Bosphorus, was occupied on the 7th of September. The right wing, under General Siewers, had been pushed on at the same time by Demotika to Enos; by the fall of which a communication was opened on the 8th of September with the Russian fleet in the Mediterranean. On the same day, the central column of advance, under General Roth, took post at Eski Baba, while the Cossacks extended as far as Loule Bourgas. The line thus occupied reached from the fleet anchored in the Euxine at Midiah, to that in the Mediterranean at Enos, a distance of about one hundred and forty miles. But as the greater part of the invading force had been employed in these demonstrations, the means nowhere existed of supporting any one of them in attacking the formidable positions in their front. If the twenty thousand Turks who reached the capital between the 26th and 28th of August, had simply shown a bold front at Adrianople and elsewhere, as they retired; the march of the Russian army would have been delayed sufficiently long, not only for their reduced numbers to have been ascertained, but also to have enabled the Grand Vizír and Hussein Pasha to act in rear of the invaders; and thus might have been prevented a humiliating treaty, which was entered into by the Divan, under the firm belief that hosts which had been compared to the leaves of a forest, numbered at least sixty thousand men. To put an end to such an alarming invasion, and save Constantinople, was a paramount object with the British Ambassador, Sir Robert Gordon; more particularly, as considerable anxiety was felt lest there should be an outbreak in the capital for the restoration of the Janissaries. A treaty of peace was signed, in consequence, at Adrianople on the 28th of August 1829.[2]

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[1] Genl. F. R. Chesney.

[2] *Ibid.*

15. The selection of a line is not decided always on military grounds alone. Political considerations frequently complicate the problem. That which is of most importance is the effect which the war may have on the policy of nations whose territories are between, or adjacent to, the frontier of the belligerents. In the wars of the French Revolution, Austrian armies were sometimes forced to hold the line of the Rhine, when good military reasons would have dictated a different course, because of the effect which would certainly be produced on the German powers bordering on the river—Baden, Wirtemberg, &c.—by leaving them uncovered. In the campaign of Jena, the Prussian army would have found the Elbe a secure and convenient line of defence, but Saxony and Hesse-Cassel would be thus left unprotected; whereas Prussia, by covering their territories with her army, would secure their co-operation and add their contingents to her numerical force. For that reason she was induced to take up a line which was the cause of all her disasters. At the outset of the late war with Russia, the first design of the allies was to engage their armies in the defence of Turkey south of the Danube; and when the Turks, single-handed, beat off the invaders, it seemed most natural that all the allied forces should combine to carry the war beyond the Danube. But in such a case it became of primary importance to consider what side Austria would take, because her position on the flank of what would then be the theatre of war gave her the power of decisive action. Her policy was a question for the allied governments to consider, and the result of their deliberations was to transfer their armies to the Crimea. Demanding, then, as this question does, diplomatic as well as military sagacity, it will be most effectually solved when the chief of the state combines the characters of ruler and soldier; and it is not the least of the advantages which a military autocrat, like Frederick or Napoleon, possesses in war, that all the circumstances are apprehended by a single mind, and the decision has all the force and coherence which unity imparts. But when generals are commissioned by their governments to execute warlike enterprises, the questions which depend chiefly on diplomacy must of necessity be solved by statesmen, who, having thus given to the campaign its original impulse and direction, will do well to leave the formation and execution of the military plan in the hands of the general.[1]

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[1] Hamley, Part II., Chap. III.

16. In the defence it is desirable that the strategic fronts and lines of defence should present both upon the flanks and front, formidable, natural, or artificial, obstacles to serve as points of support. The points of support on the strategic front are called *pivots of operations*, and are practical temporary bases, but quite different from pivots of manœuvre. For example, in 1796, Verona was an excellent pivot of operations for all Napoleon's enterprises about Mantua for eight months. In 1813, Dresden was his pivot. Pivots of manœuvre are detachments of troops left to guard points which it is essential to hold, while the bulk of the army proceeds to the fulfilment of some important end; and when this is accomplished the pivot of manœuvre ceases. Thus Ney's corps was the pivot of Napoleon's manœuvre by Donauwerth and Augsberg to cut Mack from his line of retreat. A pivot of operations, on the contrary, is a material point of both strategical and tactical importance, serves as a point of support and endures throughout a campaign. The most desirable quality of a line of defence is that it should be as short as possible, in order to be covered with facility by the army if it is compelled to take the defensive. It is also important that the extent of the strategic front should not be so great as to prevent the prompt concentration of the fractions of the army upon an advantageous point.[1]

17. If a defensive army were to restrict itself entirely to parrying blows, the enemy, feeling secure in his communications from the inertness of his opponent, would be enabled to keep his fighting power undiminished by detachments in the rear. To pursue such a course, then, even when very inferior in force, is suicidal in a defender; since a detachment judiciously menacing the enemy's communications may hold in check (or let us say, in military parlance may *contain*) a much greater number of the enemy, and proportionably diminish the disparity between the main armies. It does not follow, then, that because an army is defending a territory, it must confine itself to the defensive; on the contrary, it will best effect its purpose by actively threatening its adversary, and by taking the lead whenever an opportunity offers.[2]

18. A defensive war is not without its advantages, when wisely conducted. It may be passive or active, taking the offensive at times.

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[1] Jomini, Chap. III., Art. 20.

[2] Hamley, Part II., Chap. I.

The passive defence is always pernicious; the active may accomplish great successes. The object of a defensive war being to protect as long as possible, the country threatened by the enemy, all operations should be designed to retard his progress, to annoy him in his enterprises by multiplying obstacles and difficulties, without, however, compromising one's own army. He who invades does so by reason of some superiority; he will then seek to make the issue as promptly as possible: the defence on the contrary, desires delay till his adversary is weakened by sending off detachments, by marches, and by the privations and fatigues incident to his progress. An army is reduced to the defensive only by reverses or by a positive inferiority. It then seeks in the support of forts, and in natural or artificial barriers, the means of restoring equality by multiplying obstacles in the way of the enemy. This plan when not carried to an extreme, promises many chances of success, but only when the general has the good sense not to make the defensive passive: he must not remain in his positions to receive whatever blows may be given by his adversary; he must on the contrary redouble his activity, and be constantly upon the alert to improve all opportunities of assailing the weak points of the enemy. This plan of war may be called the defensive—offensive, and may have strategical as well as tactical advantages. It combines the advantages of both systems; for one who awaits his adversary upon a prepared field, with all his own resources in hand, surrounded by all the advantages of being on his own ground, can with hope of success take the initiative, and is fully able to judge when and where to strike.[1]

19. Indirect defence is derived more particularly from the troops: they occupy in the contiguous zones the points which give the best supports; and we have then to study the directions through which they may pass, and act more advantageously against the enemy in the zone of invasion. The greatest results are to be obtained from these active preparations; they atone for the deficiency of direct defence, and leave ample scope for the combinations of the general. The defending army must always be ready to assist at every point; therefore, the various masses must be disposed in such a manner as to afford a reciprocal and quick support. In every occurrence, the concentration of these masses

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[1] Jomini, Chap. III., Art. 17.

on the menaced point is the only remedy; but even this, in the event of an attack on the extremities of the line of defence, might be tardy and insufficient. In order to secure a more efficacious support, the establishment of a reserve is necessary. This allows of presenting to the assailants a mass able to endure the first shock, whilst we effect the concentration of the remainder of our forces. The calculation of the time and space, and the rational distribution of the active forces, are matters demanding the most scrupulous attention.[1]

20. When Denmark in 1864, was assailed by united Germany, it was out of the question that she should do more than defend her own territory as best she might. The fact of her *inferior force* reduced her to the defensive.[2]

21. During the first three campaigns of the Seven Years' War, Frederick was the assailant; in the remaining four his conduct was a perfect model of the defensive—offensive. He was, however, wonderfully aided in this by his adversaries, who allowed him all the time he desired, and many opportunities of taking the offensive with success. Wellington's course was mainly the same in Portugal, Spain, and Belgium; and it was the most suitable in his circumstances. It seems plain that one of the greatest talents of a general is to know how to use (it may be alternately) these two systems, and particularly to be able to take the initiative during the progress of a defensive war.[3]

22. After Sir Arthur Wellesley, victorious on the Douro, had marched into Spain, although the concentrated forces of the enemy, and the ill conduct of the Spanish government, forced him to retreat again to Portugal, as Sir John Moore, from the same causes, had been obliged to retreat to the ocean * * * * Wellington appreciating the advantages which an invaded people possess in their numerous lines of operation, counselled the Spaniards, and forced the Portuguese, to adopt a defensive war; and with the more reason that England, abounding beyond all nations in military resources, and invincible as a naval power, could form with her ships a secure exterior floating base or line of depôts round the Peninsula, and was ready to employ her armies as well as her squadrons in the struggle. The Spaniards, unheeding these admonitions, fought great battles, and in a

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[1] [illegible] Lendy. [2] Hamley, Part II., Chap. I. [3] Jomini, Chap. III., Art. 17.

few months lost the Asturias, Andalusia, Estremadura, Aragon, and the best fortress of Catalonia, and were again laid prostrate and helpless before the enemy. The victorious French armies then moved onwards, in swelling pride, until dashed against the rocks of Lisbon they receded, broken and refluent, and the English general once more stood a conqueror on the frontier of Spain; and had he then retaken Badajos and Rodrigo, he would have gloriously finished the fourth or defensive epoch of the war. But being baffled, partly by skill, partly by fortune; factiously opposed by the Portuguese regency, thwarted by the Spanish government, only half supported by his own cabinet, and pestered by the follies of all three, he was reduced to a seeming inactivity; and meanwhile the French added Taragona and the rich kingdom of Valencia to their conquests.[1]

23. Lord Wellington declared in 1809, that had the Spanish preserved, their two armies, or even one of them, the cause was safe. The French could have sent no reinforcements which could have been of any use; time would have been gained, all the chances were in favour of the allies; and in the first moment of weakness occasioned by any diversion on the continent, or by the growing discontent of the French themselves with the war, the French armies must have been driven out of Spain. But, no! nothing would answer excepting to fight great battles in plains, in which their defeat was as certain as was the commencement of the battle. They would not credit the accounts he had repeatedly given them of the superior number even of the French; they would seek them out, and they found them invariably in all parts in numbers superior to themselves.[2]

24. Lord Wellington was never loath to fight when there was any equality of numbers. He landed in Portugal, with only 9,000 men, with intent to attack Junot, who had 24,000. At Roliça he was the assailant, at Vimiera he was assailed, but he would have changed to the offensive during the battle if others had not interfered. At Oporto, he was again the daring and successful assailant. In the Talavera campaign, he took the initiatory movements, although in the battle itself he sustained the shock. His campaign of 1810, in Portugal, was entirely defensive, because the Portuguese army was young and untried; but his

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[1] Napier, Vol. IV.

[2] Wellington Disp.

pursuit of Massena, in 1811, was as entirely aggressive, although cautiously so, as well knowing that in mountain warfare those who attack labour at a disadvantage. The operations of the following campaign, including the battles of Fuentes Onoro and Albuera, the first siege of Badajos and the combat of Guinaldo, were of a mixed character; so was the campaign of Salamanca; but the campaign of Vittoria, and that in the south of France, were entirely and eminently offensive.[1]

25. The Duke of Wellington had never more than 80,000 men under his command during the Peninsnla War, and never more than 30,000 of these were British troops. His defensive warfare was conducted on the best principles of strategical science; and he never lost or endangered his communications with Lisbon, by the roads leading to that city. His offensive warfare, upon the subsequent lines of operation, was conducted upon the soundest principles; he never permitted his positions to be turned, nor his communications to be endangered; and, to preserve these, he fought and gained the glorious victory of Salamanca. He never committed himself in so hazardous a position as an intrenched camp, without good lines of communication with the rear; yet, such was his confidence in the efficiency of his Army for active warfare in the field, that he entertained a firm conviction that he could go anywhere, and do anything, with that which he commanded.[2]

Defence of Portugal, by Wellington.

26. The rugged frontier of Portugal lying between the Douro and the Tagus, is vulnerable in many points to an invading army of superior force. It may be penetrated between the Douro and Pinhel, and between Pinhel and Guarda, by roads leading into the valleys of the Zezere and the Mondego. Between the Sierra de Estrella and the Sierra de Gata, by the road from Alfayates to Sabugal and Penamacor, or that by Guarda and Coria. Again, it may be pierced between the Sierra de Gata and the Tagus by Idanha Velha, Castello Branco, and Sobreira Formoso; and from the Tagus to the Guadiana, a distance of

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[1] Napier, Vol VI.

[2] Douglas.

about twenty leagues, the Alentejo presents an open country without any strong fortress, save Lalippe, which may be disregarded and passed without danger.[1]

27. In the defence of Portugal, in 1810, it was necessary to find a position, covering Lisbon, where the allied forces could neither be turned by the flanks, nor forced in front by numbers, nor reduced by famine, and from which a free communication could be kept up with the irregular troops closing round the enemy. The mountains filling the tongue of land upon which Lisbon is situated, furnished this key-stone to the arch of defence. Accurate plans of all the positions, had been made under the directions of Sir Charles Stuart, in 1799, and together with the French Colonel Vincent's minutes, shewing how they covered Lisbon, were in Lord Wellington's possession; and from those documents the original notion of the celebrated lines of Torres Vedras are said to have been derived. But the above named officers only contemplated such a defence as might be made by an army in movement, before an equal or a greater force. It was Lord Wellington, who first conceived the design, of turning those vast mountains into one stupendous and impregnable citadel, wherein to deposit the independence of the whole Peninsula.[2]

28. So difficult, being the lines of invasion through Beira, it would seem that a superior enemy might be met with advantage on the threshold of the kingdom; but it is not so. For first, the defending army must occupy all the positions on this line of ninety miles,* while the enemy, posted at Ciudad Rodrigo and Coria, could, in two marches, unite and attack on the centre, or at either extremity, with an overwhelming force. Secondly, the weakness of the Beira frontier consists in this; *the Tagus along its whole course is, from June to December, fordable as low down as Salvatierra, close under the lines.* A march through the Alemtejo, and the passage of the river at any place below Abrantes, would, therefore, render all the frontier positions useless; and although there were no enemy on the borders of the Alemtejo itself, the march from Ciudad Rodrigo, by Perales, Coria, and Alcantara, and thence by the southern bank to the lowest ford in the

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* The frontier of Beira, between the Douro and the Tagus. F. J. S.

[1] Napier, Vol. I.

[2] *Ibid.*, Vol. III.

river, would be little longer than the route by the valley of the Mondego or that of the Zezere. For these reasons *the frontier of Portugal must be always yielded to superior numbers.* * * * * * * The wings of the defence were composed solely of militia and ordenança, and the whole of the regular force was in the centre.[1]

Capabilities of the frontiers of Spain and Turkey for defence.

29. Wellington did not think he could successfully apply to the frontier of Spain, the system on which the country between the Tagus and the sea, was fortified. That line is a very short one, and the communications easiest and shortest on the side of the defence. The Pyrenees are a very long line; there are not fewer than seventy passes through the mountains, and the communications, as far as he had been able to learn then, were on the side of the enemy. The defence might have been facilitated by fortifying some of the passes: but the Pyrenees could never be made, what was made between the Tagus and the sea.[2]

30. The principal range of the Balkan, exclusive of its abutments, is twenty-one miles across at its greatest width, and about fifteen from side to side at its narrowest points, including the windings. The Turkish historian, Von Hammer, states that there are only eight defiles by which the Balkan can be crossed; that from Chamaderé to Chenga, on the Nadirderbend, being the most eastern. General Jochmus, however, mentions five other passes, including mere pathways, between Nadirderbend and the sea at Cape Eminch.[3]

31. An army placed at Aidos might defend the country with great advantage;* since it could *debouch* from the mountains either towards Schumla or Varna with every prospect of overwhelming the advancing columns† whose passage across the Balkan may be considered to be

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* Jochmus considers, that, 'if the Porte had possessed masonry forts in the defiles of the Balkan and a good fortress towards Faki, the Russians would not have reached Adrianople in the campaign of 1829. F.J.S.

† These columns, it is assumed would effect their passages, by the three routes most practicable for an enemy, viz., by Schumla, Tschalikewak, Delli, Kamtschik and Karnabat by Kosludscha, Pravadi and Aidos, or by Jenikoi and Bairam Ovo: also by [illegible], through the valleys of the Kip-Dereh, to Dervish Jowan and Misivri.

[1] Napier, Vol. III. [2] Wellington Disp. [3] Genl. F. R. Chesney.

impracticable so long as both, or even one, of those places should be maintained and strongly garrisoned by the Sultan's forces. These passes are not in themselves more difficult than some of those in the Alps and in Spain, and far less formidable than those of the Taurus and the eastern side of Persia.[1]

Defensive operations, of the Austrian Army, in 1866.

32. The Austrian army was not in such a forward state of preparation for taking the field as the Prussian. Feldzeugmeister Von Benedek had not apparently anticipated such extreme rapidity and energy of movement as was exhibited by the Prussians, and had before the outbreak of hostilities announced his intention of assuming the offensive, and of invading Prussian territory, when he had given most humane and praiseworthy directions to his own troops for their behaviour in the enemy's country. An Austrian invasion of Prussia may be effected by either of two routes: the first leads over the Lusatian mountains to Bautzen and Görlitz to Berlin; the second by the valley of the Oder into Silesia. An offensive movement by the first route would have given the Austrians the advantage of seizing Saxony, and of covering the passage of the Bavarians by the passes of the Saale to Wirtemberg, where the whole of the invading army might have been united. The other route did not offer these advantages, and in it lay as obstacles the Prussian fortresses of Glatz, Neisse, and Kosel. The rapid invasion of Saxony by Prussia, and the consequent retreat of the Saxons, appears to have determined the Austrian commander to relinquish any attempt of crossing the mountains into that kingdom. His army was concentrated round Brünn and Olmütz; he could not draw it together in time to seize the passes into Saxony; and he appears to have then determined to act upon the defensive, and to hold one portion of the Prussian troops in check, while he threw himself with strong force on the others issuing from the mountain passes, in order to crush them in detail. To secure a favourable position for this operation, he concentrated his army towards Josephstadt. He sent one corps d'armée with the Saxon

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[1] Genl. F. R. Chesney.

troops to cover the issues of the passes from Saxony, there to check the armies of Prince Frederick Charles. With his forces from Josephstadt he intended to hold the Crown Prince in issuing from the mountains, and to reinforce Clam Gallas to crush Prince Frederick Charles, at Gitschin. On the 19th June, the Austrian movements with this aim commenced: that day the head-quarters of Feldzeugmeister Von Benedek were moved from Olmütz to Böhmisch Trüban.[1]

33. The business of the detachments—'of the Austrians, in the campaign of 1866, supposed to be awaiting the enemy in the angle'—watching the passes, would be not to fight, but to observe. Their object would be to select strong positions, forcing the advancing columns to halt and deploy, and to retire as soon as a competent force should be ready to attack, repeating the manœuvre wherever practicable. Their security against flank attack would be the want of roads connecting the advancing columns, and the increasing number of the avenues offered for escape as the country became more open. Apprised by these *antennæ* of the directions in which the enemy was approaching, it would be for the defender to assemble his main body at a central point from whence to strike at either wing of the assailants before they could effect their junction. The first transverse road by which they could communicate is that of Turnau, Gitschin, Trautenau. In the neighbourhood of this road, then, the main body should be assembled.[2]

34. • • • • 'When Benedek' seems to have judged it time to act with vigour; on the 29th, from Josephstadt, from Königgratz, from the Bistritz, and apparently from the side of Smidar and Gitschin, he brought his troops to a position stretching from Josephstadt, by Dubernitz, to the north of Horitz, while before him the Crown Prince's army, divided by the Elbe, had its left in Skalitz, its right towards Miletin. All day and all night, till the dawn of next morning, the great movement of concentration went on, and doubtless the Austrian commander meant to fall on his enemy on the 1st July, for the intention attributed to him of waiting to fight a defensive battle was so unsuited to the situation, that we cannot credit it. But, meanwhile, on the 29th, an action was fought on his left which upset all his plans. Two or three miles west of Gitschin, about 30,000 troops of the

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[1] Hozier, Vol. I.

[2] Blackwood's Mag.

Saxon army, and the 1st Corps were drawn up along the wooded edge of steep ravines, and in villages, forming an arc spreading about three miles from north-west to south-west of the town. Upon them the First Army advanced from the Iser. Two divisions spreading out from Sobotka, and one from the Turnau road, attacked the covering force, and drove it, with very heavy loss in killed, wounded, and prisoners, through Gitschin. The news of this disaster reached Benedek in the morning, when, finding his left flank and rear thus uncovered, he began a retreat, so hasty, that in parts it resembled a flight, and which left his army that night in great disorder round Königgrätz.[1] * * *

Defensive movements and retirement of the Russian army, in 1812.

35. 'When, in 1812, intelligence was received that Napoleon had commenced the war, against Russia,' Vidzoui was appointed as the point of concentration, a place on the road to St. Petersburg, about half-way between Wilna and the entrenched camp near Drissa, on the Dwina. At that time, St. Petersburg appears to have been the supposed 'objective' of Napoleon's line of operations, and on the 27th, when the French entered Wilna, the concentration of the Russian army was but partially effected. * * * * * * *
Bagration could not attempt a junction, and was obliged to fall back by Bobruisk upon Smolensko; but Doctorof, not having quite so far to go, was able, by forced marches and a very gallant and successful affair with the advanced guard of one of the French columns, to force a passage for his corps to the point of concentration. The main army of Russia then retired upon the Dwina into the entrenched camp near Drissa, which had been originally prepared to cover the expected line of operations on St. Petersburg; and Napoleon did not think fit to attack them in their position. It is said to have been strong both in natural and artificial defences; but a position must indeed be strong, to be impregnable to an army so superior to the defenders as the French would have been. Had Napoleon menaced St. Petersburg, in force, the Russians must have stood their ground at Drissa. * * * *

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[1] Blackwood's Mag.

The Russian general, having received intelligence that Napoleon's main army was moving towards Smolensko, left Wittgenstein behind at Drissa, to observe Courland and Livonia, and marched with the remainder of his assembled force, without loss of time, upon Smolensko; ascending the right bank of the Dwina, as far as Vitepsk, and, there crossing the river, he placed his army on the St. Petersburg road, to the northward of the town. Barclay expected to be joined at Smolensko, by Bagration, who had been unable at the commencement of the campaign to conduct his corps to the appointed place of concentration; but, keeping to the south of the French line of advance, he was now approaching by forced marches. He had been much harassed in his retreat; but in an affair with Davoust, at Sallanaika, near Moghilef, he gained a considerable advantage. * * * * * * *

A systematic retreat of a large force was conducted by Barclay de Tolly, with the greatest skill; and though no general action occurred, several partial encounters took place, in which the advantage on almost every occasion, was decidedly in favour of the retiring army. At Mojaisk, where the Russian general stood in position, to arrest the progress of the French army in force, and to occasion them the delay of preparing for a general action, his object was to gain time for the movement of Bagration. When that object was attained he moved off by night in such perfect order, that, even by the testimony of the French, scarcely the trace of a large army was to be discerned on the next day.

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Barclay de Tolly continued his retreat, directing his several columns with great judgment until he had placed his army behind Smolensko, and effected a junction with Bagration. He then occupied the town, and awaited the attack of the enemy, while the united Russian army now amounted to about 120,000 men. * * * * * *

About two in the afternoon of the 17th August, the French attacked the town, and, after a gallant and determined resistance of ten hours' duration, the Russians abandoned it in flames. The loss of the enemy was very severe, and fell especially upon the corps of Marshal Ney; but about midnight the French entered the place. The Russian army retreated in the direction of Moscow, and had its revenge for the loss of Smolensko in an affair of rear-guard with the corps of Marshal Ney. Napoleon afterwards made this town his head-quarters.

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Since the retreat of the Russian army from Smolensko, Barclay de Tolly had taken up a position at Dorogobouÿ, three days' march from that town, on the road to Moscow, and on the left bank of the Dnieper. Marshal Koutousof was appointed by the emperor to supersede him in the chief command; and on his way to join the army, he examined the ground near Borodino, with a view to dispute the advance of the French on Moscow, in a general action. He gave orders for some redoubts to be thrown up in the position, which he afterwards defended, and then proceeded to head-quarters.

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The choice of the position at Borodino, and the resolution of General Koutousof, to fight in it, do equal honour to his decision and his judgment. His military talent is sufficiently evinced by the attitude which he afterwards assumed on a flank, leaving Moscow open as a bait to lead the enemy into a false position, which caused their destruction: he has the entire merit of having adopted that strategic movement.[1]

36. 'During the retreat of the Russian army, from Borodino, in the direction of Moscow,' the invading army continued to move in three columns, Murat leading the advance, Napoleon himself with the centre column, marching on Mojaisk, and in addition to the left column, under Beauharnois, which was at Rousa, Prince Poniatowski had pushed forward on the right, to Fominsköie, to gain the great road from Kalouga to Moscow. In this emergency, General Koutousof held a council of war, in which the alternative was considered,—whether it would be better to attack the French, and to offer to the Russian army the chance of preserving Moscow, a measure which was very hazardous, considering the inferiority of numbers, and which might possibly have been attended by the most disastrous and even irretrievable consequences; or whether to continue the retreat, abandon Moscow, and take up a position on the flank of Napoleon's line of operations, menacing his communications, and waiting for reinforcements to resume active operations. The city of Moscow had been cleared of everything of value belonging to individuals or to the state, as far as possible, and even in great measure to its inhabitants. It was resolved that the city should be sacrificed, and that the army after retiring through it, should take a southerly direction behind the Oka river, along the Toula

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[1] Cathcart.

and Kalouga road; thus to keep open its communication with the army of Moldavia, if it should succeed in disengaging itself from the Austrians,—an event which there was good reason to hope might ultimately occur. After receiving reinforcements, drawn from the southern provinces, it might attempt to cut off the communications of the French army with France, by taking their line of operation in flank.[1]

37. In the defence of a territory, Brialmont is of opinion, that—"the advantage of a great pivot, situated between the capital and the places on the frontier, is to afford to the defensive army an opportunity of crushing the enemy before he has reached the decisive strategical point; and this advantage is precious, because capital cities, in consequence of their mixed population, and the political intrigues of which they are the focus, are usually less favourably situated than other large towns for supporting the privations and dangers entailed by a long siege. Thus, Madrid, in 1808, shewed much less energy than Saragossa, Valentia, Tarragona, Cadiz, Girone, &c. About the same time, Lisbon opened its gates to 25,000 French, under Junot, whilst two years after, Oporto organized formidable means of defence against the army of Soult, which had been charged with the re-conquest of Portugal. Vienna, which in 1809, would have been able to defend itself for some time, and to give a great deal of trouble to the French army, capitulated after a feeble demonstration. Paris, also, in 1814 and 1815, manifested sentiments so hostile to the Emperor, that if the French army had had to maintain an energetic defence behind the walls of that city, the faint-hearted and treasonable example of the population would, without doubt, have exercised a pernicious influence on the *morale* of the troops, and precipitated the catastrophe. For this reason he is of opinion that—while fortifying the capital—it is also necessary in large countries to construct, between this point and the frontier, places of refuge, offering to the defensive army the means—if not of arresting the enemy—at least of sufficiently weakening his resources in men and *matériel*, so as to lessen the force of his future proceedings against the

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[1] Cathcart.

central redoubt. In small countries, it would be necessary to confine oneself to the less extensive and less efficacious system of guarding only the important points on the frontier, and making use of the fortified capital as a place of refuge, under all the phases of the invasion."[1] * *

38. * * The losses—"of the Austrian army, after the battle of Königgrätz"—in men, *matériel*, and guns, rendered it impossible for Benedek to think of any new dispositions, until they were thoroughly reorganized. To carry out such a reorganization, he must seek a place of shelter, and the cover he desired was to be found under the guns, and behind the entrenchments of Olmütz. With the exception of the tenth corps, which had suffered most severely, and which he therefore despatched by railway directly to Vienna, he ordered the remainder of his army to move on the intrenched camp at Olmütz, while he left his first light cavalry division to watch the road from Pardubitz to Iglau, and his second to delay the enemy, if possible, on that from Pardubitz to Brünn.[2]

39. When the Archduke Albrecht assumed the command of all the Austrian troops in the field, he could not retain Benedek's army in Olmütz, unless he consented to sacrifice Vienna without a blow, for it was not strong enough to delay the advance of the Prussians by acting against their flank and communications. He might have determined to occupy the line of the March with the army of the north and the troops from Italy, but he had not time to take up a strong position here before the Prussians would be upon him. The line of this river was also badly suited for a defensive position, as an army lying along it would have a range of mountains, that of the Lower Carpathians, in its rear.[3] * * * * * * * *

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[1] Brialmont, Vol. I. [2] Hozier, Vol. II. [3] *Ibid.*

CHAPTER IV.

SECTION I.

FORTRESSES.

1. Great progress has been made in every branch of the art of war: fortification alone has remained almost stationary. In some countries, this art is still the same as it was 150 years ago. To convince one of this, it is sufficient to look at the great defensive works, executed in the Netherlands, since 1815, and also at the more recent fortifications of Grenoble, Algiers, Lyons, Paris, Havre, Lille, and Toulon. These places, which have cost more than 500,000,000 francs, are not distinguished by any new idea.[1]

2. In comparing fortresses of the past and present, one is struck by the very little difference between them,—or in other words, by the stationary state of the means of defence, notwithstanding the important advances made in the means of attack. This change in the equilibrium is, we think, the chief cause of the inferiority of the defence. Engineers, too exclusively occupied by the *theory* of fortification, have completely neglected to study the resources brought into play by artillery, to destroy the effect of their works.[2]

3. Fortresses are equally useful in offensive and defensive warfare. It is true, they will not in themselves arrest an army, but they are an excellent means of retarding, embarrassing, and annoying a victorious enemy.[3]

4. The defence of frontiers is a problem generally somewhat indeterminate. It is not so for those countries whose borders are covered with great natural obstacles, and which present but few accessible points, and these admitting of defence by the art of the engineer. The problem here is simple; but in open countries it is more difficult.[4] * * *

5. When the topography of a frontier is open, there should be no attempt to make a complete line of defence by building too many fortresses, requiring armies to garrison them, and which after all, might not prevent an enemy from penetrating the country. It is much wiser

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[1] Brialmont, Vol. I. [2] *Ibid.* [3] Napoleon. [4] Jomini, Chap. III., Art. 26.

to build fewer works, and to have them properly located, not with the expectation of absolutely preventing the ingress of the enemy, but to multiply the impediments to his progress, and, at the same time, to support the movements of the army which is to repel him. If it be rare that a fortified place of itself absolutely prevents the progress of an army, it is, nevertheless, an embarrassment, and compels the army to detach a part of its force or to make *détours* in its march; while, on the other hand, it imparts corresponding advantages to the army which holds it, covers his depôts, flanks and movements, and, finally, is a place of refuge in case of need. Fortresses thus exercise a manifest influence over military operations.[1] * *

6. 'Of the effects of the French cordon in 1815,'—it is as well ascertained as any fact in history can be, that they enabled Napoleon to collect an army of 120,000 men, as completely equipped as the best that ever fought, within less than a day's march of his enemy's posts. Thus he gained twenty-four hours, according to a late assertion of one who heard the expression of Wellington, upon the watchfulness of the latter. Nor less important were the Belgian; for they effectually covered the communications of Wellington, and that right flank of his line, on which, to the very last, he expected the blow to fall. So that Charras, and other modern writers of authority, appear united in the belief that Napoleon never once seriously thought of plunging his army into such a net of obstructions.[2]

7. The double object of giving security to fortresses, and of commanding through them points of strategical importance, will be best secured by placing them on natural obstacles, and at the junction of many great roads. If a mountain pass were guarded by an important place, it would be difficult to provision and supply the garrison; the issues would be easily blocked by a few troops; and an invading army might turn the place, masking the defiles with numbers less than the garrison, and its capitulation under the stress of the blockade would be a question of time only. Mountain summits, then, are unfit positions for fortresses, though small forts may be judiciously placed where they close a main pass as at Bard. But situated on rivers, at points where the main communications cross,

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[1] Jomini, Chap. III., Art. 26.

[2] C. C. Chesney, on Fortresses.

fortresses not only command both banks and open numerous opportunities for attacking the enemy that attempts to pass the obstacle, but are also difficult to invest, since the besieging army, in order to surround the place, must have bridges both above and below it, and will thus be doubly dependent on a kind of communication which floods and other casualties render especially precarious.[1]

8. Forts constructed upon mountains and rocks, are sometimes so elevated that the approach of the enemy is scarcely affected, on account of the very depressed angle at which it is necessary to fire the guns. Such posts are often unprovided with water, especially when they defend for a supply upon wells which dry up in summer; this reduces the garrison to the water in the tanks, which soon becomes bad, and forces it to capitulate.[2]

9. A space should always be left between the fortress and the river, where an army may form and rally, without being obliged to throw itself into the place, and thereby compromise its security. An army retiring upon Mayence, before a pursuing enemy, is necessarily compromised; for this reason, because it requires more than a day to pass the bridge, and because the lines of Cassel are too confined to admit an army to remain there without being blocked up. Two hundred toises should have been left between that place and the Rhine. It is essential, that all *têtes-de-ponts* before great rivers, should be constructed upon this principle, otherwise they will prove a very inefficient assistance to protect the passage of a retreating army. *Têtes-de-ponts,* as laid down in our schools, are of use only for small rivers, the passage of which is comparatively short.[3]

10. Fortresses near the flanks of lines of operations have frequently been found to be strategical points, not perhaps of the first importance, but yet of such value as to prevent their being ignored by a general who sought for success in his operations. For from them, especially if they are well connected with the enemy's base, expeditions may be made upon the lines of communication of an army, and its flanks may be so constantly menaced as to

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[1] Hamley, Part V., Chap. VI. [2] Jervis. [3] Napoleon.

endanger its advance. The most ordinary mistake, however, has been to treat these works with more respect than they deserve, and to besiege, and invest and blockade them, instead of merely watching and masking them. This was the error committed by the allies in 1793, who found themselves upon the northern frontier of France, in almost the same positions in which Wellington and Blücher afterwards were in 1815, but who, unlike those generals, deemed it necessary to delay their advance across the frontier, until they had captured the fortresses upon it, and wasted time in the sieges of Condé, Valenciennes, Dunkirk, Quesnoy, &c., which enabled the republican armies to rally, and to be reorganized for defence, and eventually to assume the offensive and to commence that career of victory, which endured with few intermissions for eighteen years. Very different was the strategy of the two great chiefs of the allies in 1815; for never swerving from their great objective, Paris, they pushed on so vigorously that they reached and occupied it, and thereby virtually put an end to the war, within a fortnight of their grand success at Waterloo. But they did not the more neglect the frontier fortresses, for they left small bodies of troops to mask them, and prevent their harassing the line of march and operation, or intercepting the lines of communication. That the fortresses should compel them to do this shows a certain amount of strategical value; and that the works should induce the allies of 1793 to besiege them, shows that their value is sometimes morally greater than it ought practically to be.[1]

11. Immediately after the death of Abercromby 'in Egypt from wounds in the battle of the 21st March, 1801,' General Hutchinson set himself sedulously to the work of fortifying the front of the British position.

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The first object of the English commander was to isolate Alexandria, and to render effectual a blockade of that extensive place and its numerous garrison by a comparatively small body of troops. He saw that if he could effect this purpose, he might carry a part of his little army to the Lower Nile, gain possession of Rosetta, and perhaps of Rahmanich, and thus secure the resources of a fertile country, till the arrival of reinforcements from England might enable him to act against the enemy on a larger scale. But with the view of isolating Alexandria more completely, and cutting its garrison off from all communication with Cairo, unless by the long and difficult circuit of the desert, Hutchinson determined on letting the waters of the sea into the vast basin of mud and sand, which had been in former days the bed of the Lake Mareotis. * * * * * It was separated from the Lake of Aboukir only by a narrow strip of earth, little more than sufficient to uphold the masonry of the canal, which, parting from the Nile at Rahmanieh, brought the water of the great river to the people of Alexandria. On the 12th and 13th of April, this isthmus was cut through by the British, and the salt waters poured impetuously through the opening. In a short time a little sea was formed, the area of which was estimated at more than twelve hundred square miles, and by the beginning of May the waters attained their natural level. Numerous gun boats, British and Turkish, passed into this new field of action, and while they secured a communication between our line, and the Arabs to the westward, they confined and rendered difficult that which the beleaguered garrison, had hitherto enjoyed. While these works were in progress and the British position was growing stronger, day by day, Hutchinson was detaching successive bodies of troops towards Rosetta.[1]

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[1] Walker.

12. The general unpopularity attached to fortifications, their expense, and the difficulty in remedying the defects of the situation of some of the ancient fortresses in the Netherlands, induced Wellington to endeavour to find a situation which, being strongly fortified, might cover the country, and which the enemy would not venture to pass; but he could find no situation which would answer the purpose. First, there was no situation in the country which afforded any advantages to be taken up as a fortress, or which covered or protected any extent of country; secondly, there was no situation to which the enemy could not have an easy access both by land and by water for the artillery and stores necessary to attack it; and, thirdly, there was no single situation in the country, which, if fortified, the enemy might not have passed without risk, as, in case of being defeated and obliged to retire, he

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[1] Sir Henry Bunbury.

could not fail to have found innumerable roads which would have led him to some one or other of the strong places on the French frontier. The construction of such a place, therefore, might have been attended by the most serious consequences to the allies, while it could under any circumstances have been of but little detriment to the French.[1]

13. Colonel C. C. Chesney, in his Essay on the strategical value of fortresses and fortified positions, observes, that the Archduke Charles, in reviewing his own great campaign of 1796, comments, with his usual painstaking clearness, upon the respective advantages and disadvantages attending the several positions of the French and Austrians at the commencement:—

"If one regards the condition of the Terrain," he says, "which was to serve as the theatre of war, one finds a great disproportion in favour of the French.

"The right wing of the French line rested on Switzerland, at that time neutral, and was strengthened by a double row of the strongest fortresses, from Basle to Landau, and by forts in the rear on the Vosges mountains. The Dutch fortresses, with Maëstricht and Juliers, covered the left; Dusseldorf, as a *tête-de-pont*, secured a most advantageous passage over the Rhine; and Luxembourg, Thionville, Sarrelouis, and Metz, made the centre well-nigh unassailable.

"If the advantage of a well fortified line of defence enlarges so much the active power of a state, and procures it the means of collecting and employing the magazines and communications of an army, without care for the defence of its own frontier; this lay so much the more on the French side, as on the Austrian it was altogether wanting," &c., &c.

To this succeeds the Archduke's details relative to the nakedness of the Swabian frontier, which the Austrians had, though holding it for four years, neglected to fortify in the least.

14. One of the first to recognize the necessity of applying to the defence of States, principles at once broader and more in accordance with the spirit of modern warfare, was General Rogniat, of the Engineers.[2]

15. The fortification of capitals ensures to armies an interior *point d'appui*, material resources, and moral advantages of great

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[1] Wellington Disp.

[2] Brialmont, Vol. I.

importance. * * * * * * In 1795 the French had in view the occupation of the capital of Austria. The main body of the Austrian army occupied the intrenched camp of Mayence. To oblige them to quit that excellent position without striking a blow, Jourdan had but to show himself on the Lahu, and Moreau in the Black Forest. Much the same would happen now, if the French army were to march on Vienna through Carinthia. The Austrian army at Luitz must of necessity abandon this intrenched camp in order to fly to the succour of the capital. It is certain, then, that *fortified* capitals not only render armies on the defensive more independent, but also render more valuable the places on the frontier and the fortified positions which cover the capitals. These advantages will be very marked, when the capital occupies a position of great strategical importance, *i.e.*, one favourable for the arrival of reinforcements—facilitating defence by natural obstacles—accessible only in certain points—having open communication either with the sea or with a neighbouring state on whose assistance it can always rely—easy to provision, possessing at all times great resources in provisions and materials, and unable to be completely invested without an unusually large army.[1]

16. On a frontier, * with few issues, especially if these be distant from each other, fortresses will be especially valuable, by obstructing an invader till the defensive army can place itself on the line of intended invasion; and the best situations for them will be easily recognized. The interior range of strong places must be situated on points advantageous for defence; and strategically important. Lastly, the defence of the capital by fortifications is a measure of incalculable advantage. "The fortifications of Paris," says Marmont, "assure more powerfully the independence of France against the attacks of all Europe than the acquisition of many provinces, which would only so much the more extend the frontier." The student of the campaign of 1814, will perceive what vast additional power of manœuvring Napoleon would have gained had Paris been secure from assault. No longer recalled by the fears of the people, or by political exigencies, to interpose directly for its defence, all his strokes would

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[1] Brialmont, Vol. I.

have been delivered in the most decisive way; and the nearer the allied armies approached the capital, the more imminent would be the risk they ran of a fatal disaster. Though instances have occurred, where, as at Silistria, frontier fortresses have, by resisting the besieger, baffled an invasion, yet the strictly defensive effect to be expected from these as from natural obstacles, is only that of delaying the assailant, and thereby giving the generals in the field the opportunity of opposing combinations and enterprises which depended for success on swiftness of execution. But, as with rivers and mountain ranges, the obstructing of the enemy is only a part, and not the most decisive part, of the influence which fortresses may be made to exercise on a campaign; and to turn them to full account a general must employ them as powerful aids for attacking the adversary at a disadvantage.[1]

17. * * 'In the Archduke Charles's proposal for the defence of the Danube valley,' the greater part of the first volume, goes to prove that, in order to defend the Austrian Hereditary States against French aggression, *it is necessary to provide first-class fortresses on the portion of the river between Ulm and Ratisbon.* As the invader could not be supposed to carry his army through the mountains of Bohemia, still less through the Tyrol, he is practically limited in his advance to a tract of country close to that portion of the stream. Two strong points upon it at the extremities, as Ulm and Ingolstadt, would be sufficient, in the Archduke's opinion, to arrest the enemy. These places, Ulm especially (as well cited in MacDougall's 'Theory of War'), possess the united advantages of closing several great land routes, and commanding the chief water communication of the country. They are, in fact, strategical positions of a high order—Ulm of the very highest. As the Archduke's recommendation of the latter was officially made at the time of his successes in 1796 (when Ingolstadt was already fortified), and was at once partially acted upon, we are able to judge with tolerable accuracy the real practical effect produced; for there have been, since, three such invasions as those he desired his country should be fully prepared to meet.[2]

18. The relations of fortresses to strategy are thus remarked on by Jomini:—"The first point to be considered is their location; the

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[1] Hamley, Part V., Chap. VI.

[2] C. C. Chesney, on Fortresses.

second lies in the distinction between the cases where an army can afford to pass the forts without a siege, and those where it will be necessary to besiege; the third point is in reference to the relations of an army to a siege which it proposes to cover. As fortresses properly located favour military operations, in the same degree those which are unfortunately placed are disadvantageous. * * * * *

'According to the views of this most experienced writer;'—fortified places should be in *échelon* on three lines, and should extend from the frontiers towards the capital.[*] There should be three in the first line, as many in the second, and a large place in the third, near the centre of the State. If there be four fronts, this would require, for a complete system, from twenty-four to thirty places.

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Fortresses should always occupy the important strategic points. As to their tactical qualities, their sites should not be commanded, and egress from them should be easy, in order to increase the difficulty of blockading them. Those which possess the greatest advantages, either as to their own defence or for seconding the operations of an army, are certainly those situated on great rivers and commanding both banks.[1]

19. Large fortified places, which are not in proper strategic positions, are a positive misfortune for both the army and the State. Those on the sea coast[†] are of importance only in a maritime war, except for depôts; they may even prove disastrous for a continental army, holding out to it a delusive promise of support. Benningsen almost lost the Russian armies by basing them in 1807 on Königsberg, which he did because it was convenient for supply. If the Russian army in 1812, instead of concentrating on Smolensko, had supported itself on Dunaburg and Riga, it would have been in danger of being forced into the sea and of being cut off from all its bases.[2]

20. * The little fortress of Königstein, situated on an isolated sandstone cliff on the left bank of the Elbe, about nine miles from

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[*] The memorable campaign of 1829, is evidence of the value of such a system. If the Porte had possessed masonry forts in the defiles of the Balkan, and a good fortress towards Faki, the Russians would not have reached Adrianople, and the affair would not have been so simple.

[†] The reduction of Sebastopol, was considered necessary, in order that the Russian Fleet in the Black Sea might be taken or destroyed. F. J. S.

[1] Jomini, Chap. III., Art. 26. [2] *Ibid.*

the Austrian frontier, was 'after the Pussian advance in 1866,' still occupied by a Saxon garrison. Inaccessible, from the steepness of the rock on which it stands, and at a considerable distance from the surrounding heights, this fortress has never been reduced. From the hill of Lilienstein, which stands on the opposite side of the river, and has a command over the fortress of more than 150 feet, Napoleon attempted to bombard Königstein, but his artillery was not heavy enough to send shot over the 3,000 yards which separate the summit of the two hills. With their rifled cannon the Prussian artillery could now easily, from the hill of Lilienstein, or from that of Paffenstein, on the opposite side, have engaged the guns of the fort on equal terms; but the Prussian commander did not deem it worth while to drag artillery to the top of these steep hills in order to force the capitulation of the small garrison of 1,200 men, who, in the event of Saxony remaining in his possession, must fall into his hands, and, in case of his being obliged to retire, could add so little to the force of his enemies. Königstein, guarded by its escarpments and impossibility of approach, was still allowed to retain its reputation for impregnability.[1]

21. The opinion which at one time prevailed on the subject, '*i.e.*, the strategical value of fortresses, and the considerations which should govern the choice of their positions,' was, that a frontier should be defended by a triple row of fortresses, a day's march (fifteen to eighteen miles) from each other, and arranged chequerwise at intervals also of a day's march; but some of the highest military authorities—Napoleon, Jomini, Vauban, Turenne, Saxe, Paixhans, and others, have shown that this is a very erroneous idea. The multiplication of fortresses paralyses a large part of the forces of the kingdom, who have to be shut up in them as garrisons, and diminishes materially the number available for offensive operations. In modern wars also the size of armies has so materially increased, that commanders can afford to disregard fortresses and without materially diminishing their numbers, to detach sufficient men to mask them without undergoing the trouble and delay of a siege. The number of roads, railroads, bridges and other facilities for communication, has also so much increased, that it is

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[1] Hozier, Vol. I.

no longer possible to block up every approach, and fortresses must now be regarded not so much as barriers, as strategic points to facilitate the manœuvres of armies. General Paixhans has given the following remarkable proof of the diminution in the value of fortresses. Before 1741, there were more sieges than battles; from 1741 to 1783, there were 67 sieges to 100 battles; during the French Revolution, 26 sieges to 100 battles; under the Consulate, 23; and under the Empire, only 16 to 100. It may be added to this, that in 1859 and in 1866, there were no sieges. In the former year it is true, that had the war been prolonged a siege would have been inevitable, but it would have been that of part of the intrenched camp formed by the quadrilateral which comes under a different category to an ordinary fortress. Napoleon says, on the subject of fortresses:—"Il en est des places fortes comme des placements de troupes. Prétendez-vous défendre une frontière par un cordon? vous êtes faible partout, car enfin tout ce qui est humain, bons officiers, bons généraux, tout cela n'est pas infini, et si vous êtes obligé de disséminer partout vous n'êtes fort nul part." Instead, therefore, of disseminating fortresses over a line of frontier, the opinion is now generally accepted that they should be placed only where they can assist the strategic movement of troops. For this purpose there should be a great central fortress, which may be placed surrounding the capital, unless the situation of the latter is very unfavourable in a strategic point of view. Between the central fortress and the frontier there should be a zone of fortresses on the principal lines of approach, and along the frontier there should be a zone of small fortresses guarding the principal strategic points, such as defiles, bridges, &c. The fortresses of the central zone should be of such a nature as to be able to shelter the whole manœuvring army. Those of the outer line should be much smaller, their business being only to obstruct the entry of an army into the country. The central fortress should be of the nature of a large entrenched camp. In addition to these, the principal sources of supply of the kingdom, such as dockyards, arsenals, the capital, &c., should be fortified, and also important strategical points, such as bridges over wide rivers, &c. It is very essential that the capital should be fortified, otherwise the movements of the field army are cramped by the necessity of providing for its safety. The capital being generally the centre of all the organization of the kingdom, the possession of it paralyses all operations, and history shows that few governments will subject themselves to the possibility of its capture.

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The Austrian fortresses towards the Prussian frontier are Olmütz, Josephstadt, Königgrätz, and Theresienstadt. Prague was formerly a fortress, but can now hardly be considered as such; and in the * campaign '1866,' it surrendered without a blow. Olmütz does not appear to fulfil badly the requirements of one of the central zone of fortresses, although it is perhaps a little too near the frontier. It was a second-class fortress, but detached forts have been erected on the surrounding heights, which render it capable of sheltering a manœuvring army. Benedek, when defeated at Königgrätz, collected his shattered forces there, expecting probably that the Prussians would not dare to advance on the capital whilst he held that position on their flank and threatened their communications. How then was it that his expectations were not realized? *The capital was not fortified.* The Prussian army, neglecting Benedek, advanced straight on Vienna, and the Austrian army was obliged to retire by forced marches from Olmütz to assist in the defence of that city. This seems, therefore, to add another illustration to the principle, that the capital should be always fortified. The fortresses of Königgrätz and Josephstadt appear to fulfil the conditions neither of the outer nor central zone of fortresses. They are not sufficiently near to the frontier to guard the passes, and they are not of sufficient size to shelter the manœuvring army. Accordingly we find that they played a very unimportant part in the campaign. They were neither able to retard the advance of the Prussians over the mountains, nor, after the defeat of Königgrätz, were they of any use to the defeated Austrian army. The fortress of Theresienstadt was not on the line of operations. In one important particular, however, the three last-named fortresses rendered great service to the Austrians. They blocked the lines of railroad, and prevented the Prussians from making use of them; though even this service was not effectually performed.[1]

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[1] Lieut.-Colonel Cooke.

When a frontier is unmasked by any natural obstacles, and has rous issues, it is in vain to attempt to close it entirely with fortifis; for an enemy, masking one or two of the strong places, would rate the line, and still be superior to the defensive army in the deprived, as it would be, of many troops for the ineffective ons of the frontier. That the influence of fortresses extends only limited radius, is seen from the fact, that in 1815 Tournay and had not the slightest effect on Napoleon, when he was advancing e line of Charleroi. But, on the other hand, Napoleon may have mainly induced to select that line by the fact that Mons and ay were fortified, and that his fighting force would be diminished e necessity of masking them, should he advance by the roads on i they stood. On the whole it would seem that an open frontier e best protected by a very few strong places, situated on the most , lines to the capital, whereby an invader will be driven to make a circuit, or to diminish his fighting force considerably, in order s them, while the garrisons drawn from the defensive army will be reduced to a minimum.[1]

Brialmont, who in his '*Défense des Etats,*' has entered fully into rcumstances attendant upon the positions of fortified places, thus arises:—'A good system of defence ought to realize as nearly as le the following conditions. Towards the centre of the kingdom, a ed capital, serving as a base for the defence. On the frontier, s of various importance, guarding the defiles, and the essential ges. Between these places and the capital, as many large places of e as there are circles of invasion (except in small States, where the al would serve instead of them.) If the seat of Government is too to the frontier to act as a central base,—another point should hosen, and the capital fortified merely as an important strategic . In States recently conquered, the great centres of population ld in addition be garrisoned, the people being apt to revolt. This is case in British India, where certain towns have been fortified, solely political grounds. In order to keep such cities in awe, a citadel, or a in the neighbourhood, is nearly always enough. If they are cometely surrounded by defensive works, a large garrison would become necessary, and there would be great difficulty in retaking them, should the insurgents, by a *coup-de-main*, succeed in gaining possession of them.'[1]

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[1] Hamley, Part V., Chap. VI.

24. The most distinguished military men of Europe, have for a long time expressed their surprise, that a nation so intelligent as the English, and well aware of their greatness, has not exhibited more foresight and wisdom as to its means of defence. This astonishment has been shared in by the most illustrious generals of Great Britain, especially by the Duke of Wellington, who did not fail to protest energetically against the negligence of the government and the culpable indifference of the citizens.[2]

25. It is acknowledged that an army on the defensive, which does not possess a large place as a depôt in the rear of its line of defence, which can be used as a base for offensive movements or to retire on in safety after a check, is in a bad condition. This truth is so simple, and has been applied in Europe in so general a manner, that we are surprised not to have met with it in any of the reports or in any of the works on the defence of England. * * * *

Respecting the practicability of effecting a landing, notwithstanding the defences of Dover and Portsmouth, such cannot be disputed after the declaration of the most illustrious English general. * *

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It is then essential that the English army should have in rear of its line of fortified ports and arsenals, at least one great place of depôt where it could concentrate before the landing of an enemy and seek refuge after a serious reverse. General Cathcart and the Duke of York were aware of this necessity in 1803, as shewn by their project for fortifying London. If this project could be carried out now, or if any other project could be substituted, it would not be necessary to hesitate to submit it for the patriotic examination of the nation and of the English Parliament. But London has become so enlarged, that to fortify that position according to the requirements of new artillery, it would be necessary to give to the outer lines and to the entrenched camp such large proportions, that the greatest part of the English army, great quantities of *matériel* as well as large sums of money would be taken up in this position, to the detriment of the army in the field, already insufficient, without this increase of fortifications.[1]

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[1] Brialmont, Vol. I. [2] Brialmont, Défense de l'Angleterre.

26. In order to ensure the proper defence for England, Brialmont in his 'Systéme de défense de l'Angleterre,' is of opinion, that it would be necessary,—

(1) To increase the fortifications of Chatham.

(2) To construct a new fortress at Guildford.

(3) To create a great depôt, with a large intrenched camp at Croydon, ten miles from London. This place, adapted for a strong defensive position, is situated in rear of the centre of the chain of hills which form the boundary of the southern portion of England. Three important debouches of this chain, would be occupied by the fortresses of Dover, Chatham, and Guildford. Portsmouth would serve as an advanced position, and would be destined to prevent an attack by the right of the line of defence.

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However, it will be necessary that the English army, concentrated at Croydon, should be able to act altogether or partly on the left bank of the Thames, and that is why we propose to construct one *tête-de-pont* opposite Gravesend at Tilbury Fort, another *tête-de-pont* at Woolwich, and a third at Kingston. The two first would be so constructed, as to be able to assist by their works, in the defence of the Thames, against a naval attack. In addition to this system of defence, would be the grand system of railways, which places Croydon in communication with the ports of the channel, and which connects these ports by coast lines.

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In fact, on whatever point, a debarkation was made, between Portland and the North Foreland, the English army would be able, from its central position, near London, to approach the invader, dispute every foot of ground and retire immediately without injury, into the intrenched camp at Croydon. Protected by this camp, the English army, would have nothing to fear from a force three times or even four times as strong as itself, and as long as it remained intact, the enemy would be unable to move into the interior of the country. Such are the fundamental principles on which the defence of England, should be based.[1]

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[1] Brialmont, Défense de l'Angleterre

SECTION II.

SIEGES.

1. General Paixhans, continuing the work of distinguished writers, proved by figures in his work entitled "Force et faiblesse militaire de la France," that fortresses had lost in importance in proportion, as the art of war had advanced. Thus, before 1741 there were more sieges than battles: from 1741 to 1783, there were 67 sieges to 100 battles; during the French Revolution, 26 sieges to 100 battles; under the Consulate, 23; and under the Empire, only 16. In spite of these facts, and these unmistakable proofs, the number of fortresses has not diminished. It may even be said that in many countries the number has increased. From a return made in 1848, there were at this time over 700 fortresses in Europe, viz:—

In Austria	52.
In the Germanic Confederation	16.
In Prussia	36.
In Switzerland	2.
In Holland	34.
In Belgium	21.
In Sardinia	28.
In the Italian States	65.
In Sweden and Norway	28.
In Denmark	11.
In Spain	51.
In Portugal	31.
In Russia	86.
In Greece and Turkey	55.
In France	199.
Total	715.

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[1] Brialmont, Défense de l'Angleterre.

The only State, which since that time has firmly resolved to demolish all useless fortresses, is Belgium. The Coalition of 1815, had saddled on this country a system of defence too scattered, and too vast for its resources.

The errors of this system were recognized in 1831, by the Convention of the 14th December, prescribing in the interest of the national defence the demolition of five places.[1]

2. Sieges, in Lloyd's opinion, should never be undertaken but for the following objects :—

1st. When a fortress is situated upon the passage which leads to the enemy, rendering it impossible to penetrate further without the capture of it.

2nd. When a fortress intercepts the communications, and the country is unable to furnish the necessary subsistence.

3rd. When a fortress is wanted to facilitate operations by covering magazines formed in the enemy's country.

4th. When the enemy's principal depôts are within one, which being captured would cripple his future ability to keep the field.

5th. When the capture of a fortress produces the conquest of a considerable portion of country, and enables the besieger to winter in that vicinity. To these might be added,

6th. The recapture of a fortress essential in the defence of a frontier.[2]

3. If Burgos, a mean fortress of the lowest order, had fallen early, the world would have seen a noble stroke. For the Gallicians, aided by a weak division of Wellington's army, and by the British reinforcements marching up from Corunna, would, covered by Burgos, have sufficed to keep the army of Portugal in check, while Popham's* armament would have fomented a general insurrection of the Northern Provinces. Meanwhile, Wellington, gathering 45,000 Anglo-Portuguese, and 15,000 Spaniards, on the Tagus, would have marched towards Murcia; Ballesteros' army, and the 16,000 men comprising the Alicant army, would there have joined him, and with 100,000 soldiers he would have delivered such a battle to the united French armies, if indeed they could have united, as would have shaken all Europe with its martial clangor.[3]

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* Naval force, under Sir Home Popham, menacing the coast line. F.J.S.

[1] Brialmont, Vol. I. [2] Aide Mémoire. [3] Napier, Vol. V.

4. How could any offensive operation have been attempted while Badajos remained in the enemy's position? If Wellington had advanced in the North, Soult making Badajos his base, would have threatened Lisbon; if Wellington marched against the French centre, the same thing would have happened, and the army of the North would also have acted on the left flank of the allies or have retaken Ciudad Rodrigo. If an attempt had been made against Soult, it must have been by the Lower Guadiana, when the French army of Portugal, coming down to Badajos, could have either operated against the rear of the allies, or against Lisbon. Badajos was therefore the key to all offensive operations by the allies, and to take it was an indispensable preliminary.[1]

Attack on Sebastopol.

5. "The gallant and successful resistance of the Turkish army to the Russians, in 1854,—the raising of the siege of Silistria—the retreat of the Russian army across the Danube, and the anticipated evacuation of the Principalities, had given a new character to the war.

"The safety of Constantinople from any invasion of the Russian army was now, for a time, at least, secured; and the advance of the English and French armies to Varna and Pravardi had succeeded in its object, without their being called upon to meet the enemy in action. Any further advance of the allied armies could on no account be contemplated.

"The difficulties of the siege of Sebastopol appeared to Her Majesty's Government to be more likely to increase than diminish by delay; and as there was no prospect of a safe and honourable peace until the fortress was reduced and the fleet taken or destroyed, it was on all accounts most important that nothing but insuperable impediments—such as the want of ample preparation by either army, or the possession by Russia of a force in the Crimea greatly outnumbering that which could be brought against it—should be allowed to prevent the early decision to undertake these operations."[2]

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[1] Napier.

[2] Dispatch of Secretary at War.

6. The Russians 'at Sebastopol,' had to raise their works of defence on a sudden emergency, and with rapidity, and they adopted, in this respect, the means employed time out of mind—namely, earthworks; and not from choice, but for the best of all possible reasons, that they were the only ones open to them, and, in fact, the great credit which is undoubtedly due to the Russians, is not for their ingenuity in employing earthworks, but for their energetic defence, notwithstanding the weakness and imperfection of such works.[1]

7. The energy displayed in the defence of Sebastopol, does great honour to the Russian army; but it may be well to reduce that merit to its proper limits, and not suppose that either in skill, labour, or bravery, they surpassed the allies. Warfare is a difficult game, and, as with players at chess or whist, that general is the best who commits fewest errors. The siege of Sebastopol exhibited, no doubt, errors on both sides; but while those of French and Russians were tacitly submitted to, as of unavoidable occurrence, and amply compensated for by general merit, attention has been loudly called to innumerable lapses on the part of the British, some well founded, but very many emanating from the minds of critics who had no knowledge of the business of which they constituted themselves supreme judges, nor made any allowance for the circumstances of the case. For the defence of Sebastopol, the enemy possessed immense advantages.

(1) The positions all around it were exceedingly strong in features, and in many parts presented a very rocky soil to the attacks. It is true, that it was not regularly fortified; but there were along the front, substantial towers, old walls, and strong buildings, that could be turned to good account against any attempt at a *coup-de-main.*

(2) It had within it, not what could be called a garrison, but *an army* of not less, probably, than 25,000 men; it was, in fact, not a fortress, but an army intrenched on a very strong position, along a line of moderate extent, with its flanks perfectly secure.

(3) It contained the resources of a very large naval and military arsenal—probably the largest ever collected in any one place—with those of a fully manned and equipped fleet of fifteen or sixteen sail

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[1] Sir J. F. Burgoyne, Part II.

of the line, besides other vessels, which furnished in addition to the material, not less than 10,000 good seamen-gunners, quite competent to every service of batteries.

(4) Over the flanks, on which was decidedly the front for attack, they held the commanding ground on the opposite side of the harbour, greatly in advance of their line of defence of the south side; so that the attacking party in their approaches were taken in flank and rear for a distance of not less than 2,000 yards from the place. Although the range from that side was considerable, and much cover was afforded by the undulations of the ground, still, from the circumstance, and the very great command possessed by the enemy of artillery of the heaviest nature, this advantage caused great annoyance to the allies, restricted them from availing themselves of many otherwise favourable sites for batteries and works, and acted as a powerful support to the defence.

(5) The force of the allies was too small to make it possible to invest the place on both north and south sides (and there cannot be a doubt about the propriety of choosing the south); the consequence was that the communication between the place and the country, in which they had a manœuvring army, was free and unobstructed for the whole period of the siege; the garrison could be augmented, reduced, or relieved, at pleasure; every supply could be sent into it, and sick, wounded, and encumbrances removed from it at will. Nor should it be omitted, among the advantages, that the town and buildings in general many of which were very substantial, though not absolutely incombustible, were of such a nature, that no great efforts were required to prevent the fires from spreading.[1]

8. The so-called siege of Sebastopol, * * was the attack of a great intrenched *tête*, whose communications with its base were never interrupted. In this attack, the allied army had to contend, not only with the very strong garrison which the fortress contained, but, through it, with all the resources of Russia; just as the army before the lines of Torres Vedras may be said to have contended against all the resources of England, as they were poured into Lisbon by sea. The most instructive lesson that can be learnt from that undertaking

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[1] Sir J. F. Burgoyne, Part II.

is, never to attempt the attack of a fortress without completely investing it, so that no succour can get in. It was entirely through the inadequacy of the allied army to effect that first condition of a siege, that the attack of Sebastopol was so protracted and so sanguinary; and not because its defences consisted of earthern ramparts.[1]

9. There are only two ways of ensuring the success of a siege. The first, to begin by beating the enemy's army employed to cover the place; forcing it out of the field, and throwing its remains beyond some great natural obstacle, such as a chain of mountains, or a large river. Having accomplished this object, an army of observation should be placed behind the natural obstacle, until the trenches are finished and the place taken. But if it is desired to take the place in presence of a relieving army, without risking a battle, then the whole *matériel* and equipment for a siege are necessary to begin with, together with ammunition, and provisions for the presumed period of its duration, and also lines of contravallation and circumvallation, aided by all the localities of heights, woods, marshes, and inundations. Having no longer occasion to keep up communications with your depôts, it is now only requisite to hold in check the relieving army. For this purpose, an army of observation should be formed, whose business it is never to lose sight of that of the enemy; and which, while it effectually bars all access to the place, has always time enough to arrive upon his flanks or rear, in case he should attempt to steal a march. It is to be remembered too, that by profiting judiciously by the lines of contravallation, a portion of the besieging army will always be available in giving battle to the approaching enemy. Upon the same general principle, when a place is to be besieged in presence of an enemy's army, it is necessary to cover the siege by lines of *circumvallation*. If the besieging force is of numerical strength enough (after leaving a corps before the place four times the amount of the garrison), to cope with the relieving army, it may remove more than one day's march from the place; but if it is inferior in numbers after providing for the siege as above stated, it should remain only a short day from the spot,

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[1] Douglas.

in order to fall back upon its lines if necessary, or receive succour in case of attack. If the investing corps and army of observation are only equal, when united, to the relieving force, the besieging army should remain entire within, or near its lines, and push the works and the siege with the greatest activity.[1]

10. If the besieging force is numerically inferior it should take up a strategic position covering all the avenues by which succour might arrive; and when it approaches, as much of the besieging force as can be spared should unite with the covering force to fall upon the approaching army and decide whether the siege shall continue or not. Buonaparte in 1796, at Mantua, was a model of wisdom and skill for the operations of an army of observation.[2]

11. * * * A formidable army is collecting in the Tyrol to raise the siege of Mantua: it commits the error of marching there in two bodies separated by a lake. The lightning is not quicker than Napoleon. He raises the siege, abandons everything before Mantua, throws the greater part of his force upon the first column, which debouches by Brescia, beats it and forces it back upon the mountains: the second column arrives upon the same ground, and is there beaten in its turn, and compelled to retire into the Tyrol to keep up its communications with the right. Wurmser, upon whom these lessons are lost, desires to cover the two lines of Roveredo and Vicenza; Napoleon, after having overwhelmed and thrown the first back upon the Lavis, changes direction by the right, debouches by the gorges of the Brenta upon the left, and forces the remnant of this fine army to take refuge in Mantua, where it is finally compelled to surrender.[3]

12. 'In May, 1811, the siege of Ciudad Rodrigo, could not be undertaken for'—Wellington could not remove the obstacles that choked his path, nor could he stand still lest the ground should open beneath his feet. If he moved in the north, Marmont's army and the army under Bessieres were ready to oppose him, and he must take Ciudad Rodrigo or blockade it before he could even advance against them. To take that place required a battering train, to be brought up through a mountainous country from Lamego, and there was no covering position for the army during the siege. To blockade and pass it would so weaken his forces, already inferior to the enemy, that he could

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[1] Napoleon. [2] Jomini, Chap. III., Art. 26. [3] *Ibid.*, Art. 21.

do nothing effectual; meanwhile Soult would have again advanced from Llerena, and perhaps have added Eloas to his former conquests.[1]

13. 'The causes for renewing the siege of Badajos, after the battle of Albuera, were, that,' to act on the defensive in Beira, and follow up the blow against Soult, by invading Andalusia, in concert with the Murcians and the corps of Blake, Beguines and Graham, while Joseph's absence paralysed the army of the centre; while the army of Portugal was being reorganized in Castile; and while Suchet was still engaged with Taragona, would have been an operation suitable to Lord Wellington's fame and to the circumstances of the moment. But then Badajos must have been blockaded with a corps powerful enough to have defied the army of the centre, and the conduct of the Portuguese government had so reduced the allied forces, that this would not have left a sufficient army to encounter Soult. Hence, after the battle of Albuera, the only thing to be done, was to renew the siege of Badajos, which, besides its local interest, contained the enemy's bridge equipage and battering train; but which, on common military calculations, could scarcely be expected to fall before Soult and Marmont would succour it: yet it was only by the taking of that town that Portugal itself could be secured beyond the precincts of Lisbon, and a base for further operations obtained. According to the regular rules of art, Soult should have been driven over the mountains before the siege was begun, but there was no time to do this, and Marmont was equally to be dreaded on the other side; wherefore Lord Wellington could only try, as it were, to snatch away the fortress from between them, and he who, knowing his real situation, censured him for the attempt, is neither a general nor statesman. The question was, whether the attempt should be made or the contest in the Peninsula be resigned. It failed, indeed, and the Peninsula was not lost, but no argument can be thence derived, because it was the attempt, rather than the success, which was necessary to keep the war alive; moreover the French did not push their advantages as far as they might have done, and the unforeseen circumstance of a large sum of money being brought to Lisbon, by private speculation, at the moment of failure, enabled the English general to support the crisis.[2]

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[1] Napier, Vol. IV. [2] *Ibid.*

SECTION III.

INTRENCHED CAMPS.

1. Intrenched camps used as a place of refuge, for a point *d'appui*, and for a base of operations for an army in the field, are establishments of a modern institution.[1]

2. To Vauban belongs the honour, of having been the first to point out the means of prolonging the defence of a place, by the aid of intrenched camps, to serve as pivots of operation and as places of refuge, for a small *corps d'armée*.[2]

3. As regards the works for intrenched camps, they are similar to those placed in fortifying a position, and taking advantage of natural obstacles, and resources found on the spot; but the intrenched camp is generally taken up for temporary purposes, whilst the fortified position is of a permanent nature, at least during hostilities. Intrenched camps are seldom constructed, in consequence of the immense labour; and when required, their use appears to be limited to the following objects:

(1) For the security of an army or corps to cover a siege.

(2) To intrench a corps of observation for the security of a line of frontier or territory, whilst the main army is occupied with offensive operations in another direction.

(3) For the defence of a frontier; placed in conjunction, or immediate connection, with a fortified place.[3]

4. The following rules are generally adopted in the selection of ground for an intrenched camp.

(1) The site, supposes an advantageous ground to which it is only necessary to add some artificial assistance. The fortifications are disposed as if they were the *enceinte* of a place, of which the bastions, or works, are detached and closed by the gorge, to form so many separate forts. Curtains, if used, may be added, but not joined to the bastions, in order to leave sufficient passages for the troops. One of

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[1] Brialmont, Vol. I. [2] *Ibid.* [3] (Aide Mémoire). G.G.L.

the principal considerations in the choice of a site, is having sufficient depth for the formation of the troops; and the ground should not be open to a cannonade from the neighbouring heights;—and all villages within 1500 yards should be occupied, and all obstructions removed within that distance.

(2) An inaccessible position is not always taken up, without it can be easily succoured; as an intrenched camp seldom has all the resources for a long defence and the means of retreat should be considered.

(3) The junction of two rivers frequently offers an advantageous site for an intrenched camp; particularly in connection with a fortified place as such a position is difficult to blockade, and easily succoured.

(4) An ample supply of stores, ammunition, food, fuel, forage, and water, is necessary to meet the object of occupying the fortified camp; for without these the expense and labour are thrown away.[1]

5. Fenquiere says, that we should never wait for the enemy in the lines of circumvallation, but that we should go out and attack him. He is in error. There is no authority in war without exception; and it would be dangerous to proscribe the principle of awaiting the enemy within the lines of circumvallation.[2]

6. However good may be the site of such a camp, it will always be difficult to locate it so that it may not be turned, unless like the camp of Torres Vedras, it be upon a peninsula backed by the sea. Whenever it can be passed either by the right or the left, the army will be compelled to abandon it or run the risk of being invested in it. It is also important that they be established close to a fortress, where the depôts may be safe, or which may cover the front of the camp nearest to the line of retreat. In general terms, such a camp on a river, with a large *tête-de-pont* on the other side to command both banks, and near a large fortified city like Mayence or Strasbourg, is of undoubted advantage; but it will never be more than a temporary refuge, a means of gaining time and collecting reinforcements. When the object is to drive away the enemy, it will be necessary to leave the camp and carry on operations in the open country.[3]

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[1] (Aide Mémoire). G.C.L.

[2] Napoleon.

[3] Jomini, Chap. III., Art. 27.

7. When you are obliged to attack an intrenched enemy, it is always best to do it immediately, and before his works are quite finished. What may be impracticable to-day, to-morrrow may be impossible. * * * * * *

The reason why intrenchments are generally forced, is because their flanks are not sufficiently secured. If intrenchments be flanked by a river which is fordable, they may be easily attacked on that side. Frederick the Great asserted that, "he was no advocate for intrenched camps, unless it were to cover a siege, and even in that case did not know whether it was not always more advisable to meet the enemy in the field."[1]

8. The most celebrated of the intrenched camps of Frederick, that of Buntzelwitz, was constructed on a height, about two leagues from Schweidnitz. * * * * *

This intrenched camp permitted Frederick, whose army consisted of only 60,000 men, to arrest 130,000 Austro-Russians, and to oblige them at length to retreat (1761).

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The intrenched camps of Kehl and of Dusseldorf, which rendered such important services in the campaign of 1796, were in reality, only permanent *têtes-de-ponts.*

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But the most remarkable intrenched camp, and which has shewn to the greatest advantage, the immense services which may be rendered by a vast position, fortified, after the principles of modern tactics, is without doubt the intrenched camp of Torres Vedras. This camp offers some comparison, with that of Buntzelwitz; but, Sir Arthur Wellesley, with more knowledge, than the engineers of Frederick, gave larger intervals to his lines and greater strength to the works which formed them.[2]

9. The intrenched camp 'of Buntzelwitz' was * invested by the Russian and Austrian armies, with these it was resolved to attack the intrenched camp; a well combined project of attack was formed, and all the dispositions for carrying it into effect were made. The Austrian troops assembled at their posts; but the Russian General

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[1] Frederick the Great.

[2] Brialmont, Vol. I.

dissented from the plan, declaring that it was imprudent to attack the King of Prussia in so formidable a position, and unnecessary to do so, because his Majesty would soon be forced to leave it for want of provisions. A few days afterwards, the Russian army raised the blockade, burned their tents, and repassed the Oder, leaving only a small auxiliary corps of 20,000 men with the Austrians. (Jomini, ut sup.). Marshal Laudon then renounced, of necessity, the hope of attacking the King of Prussia with any success, and returned to the camp of Kunzendorf. "Thus," says Jomini, "the King of Prussia luckily escaped the greatest danger he had ever incurred." The perilous predicament in which the King of Prussia placed himself on this occasion, was subsequently admitted by himself; and the error he committed, in thus exposing himself and his army, his country and his cause, to utter ruin, he strongly condemned: and, while admitting the importance of intrenched positions, when they cover important points, and protect communications with a base, by one or by several lines of operation, he came to the conclusion that the very worst resource of a large army, well constituted and well commanded, was to place itself in an intrenched camp, whether under a fortress or not, if the position were liable to be invested on all sides, and to have the communications with its base intercepted.[1]

10. Fortresses, to which are attached bodies of troops for offensive operations, by which those fortresses become in fact intrenched camps, unless protected on one side by the sea or some impassable obstacle, may be surrounded; and thus the troops in them may lose their connection with their proper base, and may be attacked and forced at some point on their periphery. Not such were the lines of Torres Vedras: the troops in these could not be starved out, nor could the lines be attacked but in front. They formed a Grand Tête, having its communications open to the sea; and with its base at Lisbon, which it completely covered.[2]

11. The dubious advantages, attendant upon the protection offered to troops, resting upon a system of lines, are remarked upon by General Sir William Napier:—"Soult at the battle of Nivelle; fared as most generals will, who seek by extensive lines to supply the want of numbers, or of hardiness in the troops. Against rude commanders and

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[1] Douglas.

[2] *Ibid.*

undisciplined soldiers lines may avail, seldom against accomplished generals, never when the assailants are the better soldiers. Cæsar at Alesia resisted the Gauls, but his lines served him not at Dyrrachium against Pompey. Crassus failed in Calabria against Spartacus, and in modern times the Duke of Marlborough broke through all the French lines in Flanders. If Wellington triumphed at Torres Vedras, it was perhaps because his lines were not attacked, and, it may be, Soult was seduced by that example. His works were almost as gigantic and upon the same plan, that is to say, a river on one flank, the ocean on the other, and the front upon mountains covered with redoubts and partially protected by inundations. But the Duke of Dalmatia had only three months to complete his system, his labours were under the gaze of his enemy, his troops, twice defeated during the execution, were inferior in confidence and numbers to the assailants. Lord Wellington's lines at Torres Vedras had been laboured for a whole year. Massena only knew of them when they stopped his progress, and his army inferior in numbers had been repulsed in the recent battle of Busaco. It is not meant by this to decry intrenched camps within compass, and around which an active army moves as on a pivot, delivering or avoiding battle according to circumstances. The objection applies only to those extensive covering lines by which soldiers are taught to consider themselves inferior in strength and courage to their enemies. A general is thus precluded from showing himself at important points and critical periods; he is unable to encourage his troops or to correct errors; his sudden resources and the combinations of genius are excluded by the necessity of adhering to the works, while the assailants may make whatever dispositions they like, menace every point and select where to break through. The defenders, seeing large masses directed against them and unable to draw confidence from a like display of numbers, become fearful, knowing there must be some weak point which is the measure of strength for the whole. The assailants fall on with that heat and vehemence which belongs to those who act voluntarily and on the offensive; each mass strives to outdo those on its right and left, and failure is only a repulse, whereas the assailed having no resource but victory look to their flanks, and are more anxious about their neighbours fighting than their own."[1]

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[1] Napier, Vol. VI.

12. The second maxim as to these camps is, that they are particularly advantageous to an army at home or near its base of operations. If a French army occupied an intrenched camp on the Elbe, it would be lost when the space between the Rhine and Elbe was held by the enemy; but if it were invested in an intrenched camp near Strasbourg, it might with a little assistance resume its superiority and take the field, while the enemy in the interior of France, and between the relieving force, and the intrenched army would have great difficulty in recrossing the Rhine. We have heretofore considered these camps in a strategic light; but several German generals have maintained that they are suitable to cover places or to prevent sieges,—which appears to me to be a little sophistical. Doubtless it will be more difficult to besiege a place when an army is encamped on its glacis; and it may be said that the forts and camps are a mutual support; but, according to my view, the real and principal use of intrenched camps is always to afford, if necessary, a temporary refuge for an army, or the means of debouching offensively upon a decisive point or beyond a large river. To bury an army in such a camp, to expose it to the danger of being outflanked and cut off, simply to retard a siege, would be a folly.[1] * * * *

13. The system of intrenched camps was adopted very extensively by Napoleon at the time when he left large bodies of troops in possession of the numerous fortresses which had surrendered to him on the Elbe and the Oder, in 1813. Those cities, as Magdeburg, Wittenburg, Torgau, Dresden, Breslau, Custrin, Dantzig, Stettin, and Glogau, became, in fact, intrenched camps, and required armies for their defence. The measure was, no doubt, adopted under the expectation of being able, in his next campaign, to carry the war through Prussia and Silesia into Poland; and, had he been able to do so, he would at once have recovered military possession of the country, and, with it, those important places: but, as events proved, he was deprived of a vast amount of force, which was shut up in the fortresses, or in positions near them. All these troops were either blockaded or captured, by the immense armies which the allies were enabled to send against them, without disabling themselves from operating efficiently and successfully in driving the French out of the countries. In retiring, Napoleon I. left behind him a total force

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[1] Jomini, Chap. III., Art. 27.

which, in his subsequent necessities, would have been of the greatest importance to him; while the blockading forces, which the allies were obliged to leave, in order to mask the fortresses, could, on account of the numerical superiority of their armies, without material inconvenience, be spared.[1]

14. Intrenched camps should combine defensive and offensive faculties: the camp may be formed in contiguity to a place, and armies may, in case of need, take refuge in them; yet the camp itself should be an offensive position, from which the troops it contains may be always ready to take the offensive in the field. To place in such camps troops of secondary character, incapable of acting efficiently in the field, would deprive an intrenched camp of the great object for which it should be constructed. None, therefore, but well appointed and well exercised troops, fit for any service in the field, should occupy intrenched camps, on strategical points.[2]

15. The chain of heights, extending in a serpentine line from Finchampstead in Berkshire to Guildford in Surrey,—comprehending the wide plateaux of Easthampstead and Hartford Bridge, the Chobham and Farnham ridges, and the range of chalk-hills called the Hogsback,—constitute choice positions covering Windsor and the metropolis against an enemy coming from Hampshire and the south-western counties. This line, presenting numerous salient points, is capable of being fortified by field-works, disposed so as to defend one another and the ground about them; and thus the whole position may be rendered a sort of Torres Vedras on a small scale.[3]

Lines at York Town.

16. The fate of Cornwallis shows us that a small force, even within intrenched lines, if left without succour, cannot hold out indefinitely against a superior force. At York Town there were lines again in 'the Civil War, in the United States'; but this time not merely a small semicircle of lines round a village, but they were thrown across the

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[1] Douglas. [2] *Ibid.* [3] *Ibid.*

peninsula, and looked very formidable. The peninsula is about seven miles wide. There are creeks running into the rivers on each side, the land being low and swampy; and the natural difficulties of the ground were increased by the engineering works of the Confederates, who possessed the best engineers of the old United States' Army. The place had a very strong look, and it was reported to be kept by about 20,000 men, the best of the Confederate army, under General Magruder. • • • • • How to turn them was the next difficulty. The gun-boats which accompanied M'Clellan's army were close to his right flank, and he might be supposed able to force his way up the York River. But the batteries on the York river were so strong—the fire of forty of the very heaviest guns being brought, on that extreme point, to bear across the water—and they were so effectually backed by the fire of another fort, which had been thrown upon the other side of the York River, at a place called Gloucester, that the commanders of the gun-boats thought it was impossible to take them up. You might ask, why M'Clellan did not use the James River, which is navigable all the way up? For the simple reason that the celebrated *Merrimac* was at that time lying there; and, as long as she lay there, so long the Northern General found himself unable to use the James River.

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This impediment limited M'Clellan to the York River, where gun-boats could not go past the works. M'Clellan had heard beforehand of the opposition he was to expect at this particular point. He was not unaware of these lines; and probably he exaggerated the difficulty of passing them. He determined to turn them in this way. He landed with three out of four corps of his army, the three being under the command of three respectable officers of the old United States' Army. The fourth corps was under the command of M'Dowell, who, the year before, had lost the battle of Bull's Run; and he was to come after the rest. He was to land on the Gloucester side of the peninsula, and turn the defences on that side of the river. It was supposed that by doing that, the gun-boats would then force their way up, and that, when they got behind the enemy's works, the enemy would abandon the works.

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'The President, and the President's Cabinet, living at Washington,' insisted that the whole of M'Dowell's corps should remain behind. M'Clellan remonstrated against this; and at last he succeeded in getting one out of the three divisions which composed M'Dowell's corps sent to him, the two others remaining behind. The one division that came, commanded by General Franklin, was thought too weak for the work, that the whole corps were intended to do, which was to land and turn the defences on the Gloucester side of the river. Hence M'Clellan resolved to lay siege to these intrenchments and take them by sap. A single attempt was made to carry them by storm, but it failed in a lamentable manner. He then sat down to besiege the place in due form. There was his mistake; for the garrison, at first weak, had now gained strength. General Johnston, who had withdrawn from Manassas junction upon hearing of M'Clellan's plan, had at length reached the peninsula, bringing additional troops with him. It was on the 3rd of April that M'Clellan began his march, and we find that a month had elapsed before he was ready to push an attack on the Southern intrenchments. Then, he pushed the attack so hard, that the Southerners thought themselves in danger; and when they did find themselves in danger, they did not wait for the intrenchments to be taken; they did not wait for the Northern army to come in and follow them; but quietly moving off in the night, and taking with them, guns, stores, and everything, they abandoned the whole intrenchment and fell back towards Richmond. M'Clellan followed them up, of course. There is a placed called Williamsburg, a day's march from York Town; where again the peninsula is very narrow. There also the Southerners had thrown up works intended to detain the Northerners for a certain time before it, but they failed. An action took place on the arrival of M'Clellan's troops, as soon as they gathered in front of the enemy's works. General Sumner, the oldest officer in the Northern army, who commanded one of the corps of General M'Clellan's army, commenced an attack upon the enemy's works. By a very gallant action, one that bears examination well, a Northern brigade, by wading through an unguarded passage of one of the creeks which covered the front of the enemy's works, gained and occupied the ground on the other side, where M'Clellan soon supported them by more troops. The works were thus turned. There happened to be some open ground on their right, which had merely a creek in front of it; this creek having been waded through, and these troops having established themselves on the other side, the strength of the works was gone; and if the Confederates had waited another day, they would have been attacked to great disadvantage.[1]

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[1] (U.S. Institution), C.C.C.

CHAPTER V.

SECTION I.

COAST DEFENCE.

1. Coast defence, has for its object not only the prevention of an enemy from gaining, with the assistance of his navy, a foothold on shore, from destroying by the fire of his ships important depôts, arsenals, navy-yards, &c., and from opening a road to the interior of the country by forcing the passage to and taking possession of navigable water-ways; but also the holding of points suitable for a basis for offensive and defensive operations of the national navy, or for a port for blockade-runners and vessels in distress. It would be a a financial impossibility to fortify all points that might be accessible to an enemy along a long-stretched sea-shore; but granting even that the exchequer of a country should justify the erection of strong works for the protection of points of but secondary importance, a most fatal mistake would be made in the attempt to occupy and to hold all these points at one and the same time. The Confederates unwilling to yield to their enemy a single square inch of ground without obstinately contesting it, fell into the error of making an attempt, not only to hold too many points along their sea-coast, but also, along their navigable streams.[1]

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2. A perfect system of coast defence must necessarily combine two elements; a local defence, based on the efficiency of batteries afloat and ashore, on obstructions and torpedoes; and, if the seeming contradiction may be allowed, secondly, on offensive defence, or the series of active operations which must be left to the conjoined efforts of the army and navy. The success of local defence supposes: fortifications, that will withstand the fire of modern artillery; batteries, able to affect the the armour of iron-clad, such, as will, hereafter be used in attacks on fortified points; and obstructions sufficiently strong to prevent the enemy's steamers from passing out of reach of these batteries without leaving them time for continuing their fire at close ranges. The

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[1] Von Scheliha, Chap. I.

success of an offensive defence, next to the strength and efficiency of the army and navy, will depend on the facilities that exist for the concentration of a sufficient force with which to hinder the enemy from establishing a lodgment at any given point on the coast, or should he have succeeded in effecting a landing, to oppose any further invasion.[1]

3. As the movements of troops and *matériel*, are made usually from the centre towards the circumference, the most useful railways for the defence, are those which are directed towards the exterior, from the capital and the great strategical pivots. The lines along the frontier are of little use before invasions and dangerous after, the enemy being able to cut them at the commencement of hostilities and make them of service for his own operations. The only parallel lines of real use for the defence, are those which connect the great strategical pivots. The possibility of cutting a railroad between two places, exists less on maritime frontiers, than on others, the points for landing being limited in number, and watched by vessels. For that reason, and because it is very important to be able to concentrate quickly on the point threatened all the forces scattered for observation, it is right to establish parallel to the coast a line of railway connecting the most important maritime positions.[2]

4. 'At the period of the threatened invasion of England, by Napoleon,' Sir David Dundas held the chief command in Kent and Sussex. It was his intention, if he should be beaten on the shore, to withdraw his troops, not in the direction of London, but throwing back his right and centre to retreat upon the intrenched camp at Dover. In that strong position he could have brought the enemy to bay, and gained time for the gathering of the strength of Britain around the metropolis. Or, if the general had found that Napoleon disregarded him, and was marching straight upon London, then Dundas would have sallied forth and pressed close upon the rear and right flank of the enemy's columns. The direct road from Canterbury and the passage of the Lower Medway were barred by the intrenched camp at Chatham. The French must have taken their routes by Maidstone, Tunbridge, &c., through a more difficult country, where their columns would have been delayed by the breaking up of the roads. Sir James Pultney

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[1] Von Scheliha, Chap. I.

[2] Brialmont, Vol. I.

commanded in Sussex; Sir James Craig in Essex. With the help of carriages the former would have reached the great chain of chalk hills before the enemy; or he might have brought 10,000 men to bear on their left flank while it was embarrassed by the difficulties of the way through the Weald of Kent: Craig would have crossed the Thames from Tilbury, or have hastened directly to London. It would have been madness in the British to have risked a general battle in the field, even in such tempting positions as the chalk hills offer. Our troops were not then of a quality to meet and frustrate the manœuvres of such an army as that which Napoleon would have led to the attack.[1]

5. Sir Howard Douglas, in his tract on the defence of England, in 1859, states, as to the arrangements which should be adopted against an advance on the left bank of the Thames. * * * * * * * 'Positions should be reconnoitred and intrenched, upon which to fall back upon in succession, in order to cover the capital. A commodious steam ferry by rafts should be established between Gravesend and Tilbury Fort: each *flat* capable of transporting 1000 men at a trip; so that all the disposable force on either bank of the river might be passed to that which is attacked, in order to intercept the invaders' communication with the sea, if they have, without due precautions, advanced into the interior: whilst all the troops stationed near the capital should unite with those first opposed to the invaders, on either side of them—to effect which anywhere there would be no difficulty. The forces of Kent and Essex united, and greatly strengthened by the resources on which they had fallen back, would be enabled to act with vigour against the enemy, who, being harassed on the flanks and rear by the irregular levies which would be brought against him during his advance, would scarcely risk a general action; and, should he rashly make the attempt, there would be little doubt about the issue of the unequal contest.'

6. The principal laid down in the admirable work—'Report on the National Defences of the United States'—is that all assailable points should be guarded by forts, so as to leave the naval forces free. Forts can be made impregnable against any naval force that could be brought against them, and are needed for the protection of our fleets while

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[1] Sir Henry Bunbury.

preparing for hostilities on the ocean. The government and people of the United States view not with favour the substitution of floating batteries for permanent land defences, on account of the perishable nature of the former, and the inefficient state in which they may be when sudden danger menaces. The value which they might have, if in perfect order at the moment of being wanted, ceases as soon as the occasion which called them forth no longer exists; and their speedy decay is certain. To leave the defence of harbours and other permanent establishments to temporary constructions so costly as ships, which are formed of perishable materials, would be to expend enormous sums in a manner which would invite attack by sea. If we rely for our defence on our naval force, no portion of it should be permitted to leave our coasts for the protection of our foreign commerce, in the event of an alarm of war occurring.[1]

7. Fortifications, are among the best preparatives for defensive warfare—once made, they are always ready with the applications of moderate means, to form a barrier to an enemy, or make his advance very hazardous. They form secure receptacles for the assembly of active forces; while they can be held by those who are least useful or even totally inefficient for the field. They are, no doubt, expensive, but not unreasonably so, for the position they hold in the game of war. The cost of a single sloop of war, with its equipment, will construct a fine fort, which will last almost for ever; and that of two or three line-of-battle ships will raise a fortress. It is by no means necessary to cover this country with fortifications, as is done on the continent; but few people, who consider the subject, would not admit that it is most desirable to provide our naval arsenals, and a few leading points on the coast with defences, and to apply additional protection to some of our foreign possessions.[2]

8. *Un*fortified, an enemy would only have to detach about 15,000 or 20,000 men from his main invading army to effect in a few days the destruction of all our ships and naval establishments at Portsmouth; fortified, he must employ an army of at least three times that number, and must have a considerable time at his disposal to undertake a regular siege. *Un*fortified, no force that, in the case referred to, we could

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[1] Sir Howard Douglas, Part III., Sec. X.

[2] Sir J. F. Burgoyne, Part I.

afford for the garrisons of these places could protect *either* against the attack of 15,000 regular troops. Fortified, there is no difficulty in providing the numbers and description of troops that would be capable of making a good defence of these nurseries of the Navy. *Un*fortified, they at once fall if an enemy were to obtain a decisive victory over the army in the field; fortified, they remain in our hands even under such untoward circumstances, and thus enable us to avert the destruction of our naval power at a period when all the resources of the country would be required to enable us to retrieve the position we had temporarily lost. The foregoing observations refer to the extended lines of works which cover our naval arsenals against attack by land. We have other defences against attack by an enemy on shore (for instance the fort at Newhaven), which have for their object to prevent an enemy who may have been enabled to land a comparatively small force, obtaining possession of harbours which, exceedingly valuable to us, as sheltering our cruizers and squadrons against attack by a superior force at the particular point assailed, would be admirable bases of operation for an enemy to harbour his men-of-war and transports for landing an army, especially the artillery, cavalry, and stores. With the harbours on our coast thus defended, invasion becomes much more difficult, owing to the enemy being thrown upon the open beach to effect a landing. The works for the defence of these places absorb only a small and a partially disciplined force.[1]

9. To provide against naval attack on a port during the absence of the fleet, big guns, with all the numerous accessories for their service, are necessary; and these must be placed in positions so protected and arranged as to give them a decided superiority over the artillery of assailing ships. The question then arises whether they shall be placed afloat in strongly protected vessels, *i.e.*, in floating batteries; or at fixed points either on land or on shoals, *i.e.*, in forts The proposal to defend our ports against naval attack by floating batteries alone, implies however, that we must maintain at each of our chief ports a naval squadron sufficiently powerful to resist, during the absence of our sea-going fleet, the attack of a superior force of the enemy. Then arise the questions, what *is* a sufficiently powerful force to maintain at each point

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[1] Jervois.

for this object? what would be its first cost? in how many years will it be necessary to repeat the outlay for it? what will be the expense of its annual maintenance? It is impossible to examine these questions without arriving at the conclusion that even if our resources in money and in seamen rendered it practicable to maintain such a force in addition to our sea-going Navy, the defence of our ports can be effected much more efficiently and economically with the aid of other means. As on land, fortification enables us to economise in troops; so, on the sea-coast, we can, by the same means, economise in ships by providing for the protection of our harbours against naval attack. Irrespective, however, of the question of the expense of providing for coast defence by floating batteries alone, very little consideration is requisite to understand, that if there be positions on land from whence an effective fire can be brought to bear on the channel, anchorage, or shore to be defended, there is no object in placing the guns in vessels afloat. In positions such as * referred to, there cannot be any object in substituting an unsteady platform on which the amount of protection that can be afforded is limited by considerations inherent to floating structures, and which is liable to be taken away or to be sunk, for a fixed and perfectly steady platform on shore, which can be fully protected, either against its fire being silenced, or from capture by an enemy. In cases, however, where the distance between forts is so great that the intervening space cannot be properly commanded by their fire, or where it may be necessary to have advanced batteries of artillery at a distance from the shore, and where foundations for fixed works cannot be obtained without expense and difficulty disproportioned to the object, it becomes *necessary* to employ floating defences.[1]

10. Whatever improvements may be made in land batteries, their entire adequacy for the purpose of defence cannot be certain against the rapidity of steamers, and the facility of their manœuvring power, unless the passage to be defended be narrow and perhaps tortuous; but they may be powerful in combination with floating defences, which are peculiarly necessary in estuaries, in the mouths of many rivers, and in passages or inlets that are wide.[2]

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[1] Jervois.

[2] Sir J. F. Burgoyne.

Positions of Batteries.

11. Coast batteries are usually erected on important situations, commanding the mouth of a river or harbour, which it is requisite to defend. Should the mouth be very wide, intermediate batteries must be placed between the opposite shores on islands, breakwaters, &c., or floating batteries must be moored in favourable positons, so that any vessels endeavouring to force an entrance shall, in doing so, be compelled to pass within comparatively short ranges of the batteries.

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Another purpose for which guns are required in the defence of a coast, is to prevent troops landing from vessels in boats. Field or position artillery would generally be employed when the coast offers many beaches well adapted for the disembarkation of troops, but when there are but few landing places, so that the enemy must choose one of them, guns would be placed in field works, or permanent batteries erected in such situations as will enable the fire of the battery to flank the beach.[1]

12. It is not easy to assign any general rule for the most advantageous height of a battery above the level of the sea, because that level alters with the tide: the height should also depend on the degree of proximity to which vessels may, from their draught of water, approach to attack. It may be stated in general that all batteries should have some command over the body fired at. The most favourable situation for a gun battery in the field service is about one-hundredth part of the range above the position of the enemy. But this low command is sufficient only in firing against troops: when the fire of one battery is directed against another, a more considerable command is of great importance. At the siege of Burgos, in 1812, the batteries of the place were 50 feet above the breaching battery, at the distance of 150 yards only; and their effect was irresistible, the shot plunging on the very platforms of the besiegers' battery.

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[1] Owen.

Land batteries properly placed, well armed and skilfully served, may open with great effect on our enemy's ships at great distances, and keep up, as the latter approach, a continued and deliberate fire, the effect of which will become still more formidable in proportion as the ships are nearer.[1]

13. If, * * ships be permitted to approach with impunity, to measure well their distances from a fortress, and then deliberately open their fire, the torrent of iron which they may throw in must be irresistible and overwhelming, particularly if the batteries are placed *à fleur d'eau*, and consequently commanded by the upper decks of large ships. Batteries placed nearly on a level with the water are far more subject to the fire of ships, and are much less formidable to them, than batteries elevated somewhat above the surface of the sea: * * whereas shot, even the best directed, from the ship, will, except such as may chance to enter the embrasures, or graze the crest of the parapet, pass over the heads of the defenders in the battery without doing any material harm. Should any guns be mounted *en barbette*, which ought never to be the case in sea-batteries intended for close or flanking defences, they would inevitably be dismounted.[2]

Elevation of Batteries.

14. In proportion as batteries are elevated, they lose in the best effect of their own fire, but become far less exposed to suffer from that of ships. There is also from elevated direct batteries, if close to the water, a certain space near them which they cannot command at all, and where vessels or boats would consequently be safe from them. It is an object to strike out a medium between these conflicting advantages and disadvantages, by which the battery may be greatly secured from the fire from afloat, without losing very essentially in its own effects. This may be done by placing the guns at not less than fifty feet, above the level of the water: (high tides).[3] * * *

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[1] Sir Howard Douglas, Part III., Sec. X. [2] *Ibid.* [3] Sir J. F. Burgoyne.

15. The advantage of having guns in action on a precipice, or on ground, so steep as to catch the enemy's shot without their rebounding, even without any front cover, is well known, as there is but one small limit of altitude within which the opposing shot can take effect; whereas, when subject to the ricochet, the course that may be effective is greatly prolonged.[1]

16. Choctaw Bluff is situated on the right bank of Alabama river—"110 miles above Mobile"—at a distance of 8 miles from Owen Bluff, on the left bank of the Tombigbee river, and about 50 miles above the junction of these rivers. Both places had been fortified, with the view of closing the navigation of the two rivers in case Mobile should fall into the hands of the enemy. The highest elevation of the bluff above the mean height of the Alabama river is 91 feet; its slope towards the bend of the river is gradual, whilst its fall towards the river-bank and a boggy bottom, that is situated between the river and a millpond, is very steep. The position was well chosen, the course of the river being such as to expose a boat to a heavy fire, not only while approaching and passing the batteries, but also after having passed them.[2]

17. The works which the in-shore squadron 'at the naval attack on Sebastopol' undertook to engage, were three:—At a bend of the coast north-east of Cape Constantine, there stood that small fastness which the English surnamed the 'Wasp.' Overhanging the shore, at an elevation of 130 feet above the level of the sea, the work was so well covered round by its glacis, that, much as it made itself felt, the Allies, at the beginning of the war, hardly knew the form of its structure. They have since learnt that it was a small square tower 27 feet high, with a diameter of 50 feet, and surrounded by a ditch. Besides a piece placed for the defence of its drawbridge, it mounted on its summit eight guns, being one at the centre of each of the four sides, and one at each of the four angles. Of those eight guns, there were five that could be brought to bear upon shipping in the waters beneath. The Telegraph battery was an earthwork on the cliff, which gave it an elevation of 100 feet above the level of the water. It was armed with five guns, all having command towards the sea. The great casemated fastness called

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[1] Sir J. F. Burgoyne.

[2] Von Scheliha, Chap. IV.

Fort Constantine stood at the water's edge, and along with Fort Alexander and the Quarantine Sea-fort contributed largely to the cross-fire which defended the entrance of the roadstead and its approaches. * * * * *

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* * Altogether, the fort mounted 97 guns, of which more than 60 were in casemates, 27 in the open-air batteries at the top of the fort. Of these 97 guns there were 43, according to General de Todleben, that could be brought to bear upon some portion or other of the allied fleet—that is to say, 23 (at a very long range) upon the French fleet, 18 upon the main division of the English fleet, and 2 only in the direction of a vessel approaching from the north along the five-fathom edge of the shoal.[1]

18. * * As soon as the *Arethusa* and *Albion* had been disabled and beaten off, the fire from the cliff, which before had been divided in its objects, became concentrated with powerful effect upon the three remaining ships. Of these the *London* was the one which lay closest under the guns of the Telegraph battery. So, against that battery as his real antagonist, Captain Eden, exerted the whole power of his port broad-side; but after a while he was able to assure himself of that which we now know with certainty—namely, that his ship, whilst sustaining a good deal of havoc and losing men, killed and wounded, was absolutely powerless against the battery.[2] * * *

19. If the casemated batteries at the water's edge proved all but safe against shot, they did not, on the other hand, exert much power; and unless a third species of force had been ready to take part in the combat neither the ships nor the sea-forts would have been very much altered in their relative strength by the effect of a three hours' fight. But the interposition of the two little works on the cliff, or perhaps indeed we may say of the Telegraph battery alone, wrought so great a havoc in the ships which came under their guns, as to give to the coast defences a decisive ascendant over their naval assailants; and this result the cliff batteries were enabled to achieve without being subjected in return to any grave loss or injury. In the *Wasp*, 22 men were wounded, and a gun carriage overturned, but that Telegraph battery which wrought so great a havoc in our ships sustained no harm at all in either men or material.[3]

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[1] Kinglake, Vol. III. [2] *Ibid.* [3] *Ibid.*

Firing at vessels in motion.

20. The greatest difficulty to be encountered by the artillery on shore against shipping, consists in firing with good effect at vessels when in rapid motion; this will be particularly experienced against steamers, the progress of which class does not depend in any great degree, either in direction or in speed, on wind or tide. If the vessel is approaching the battery end on, or nearly so, the firing at her will be comparatively easy; the line of direction will alter but little, and the elevation will be almost the only matter to be attended to. The time for which she will be exposed to the fire from any one battery will depend upon her speed; with steamers it can always be very rapid. Supposing them to be, therefore, of considerable power, and reckoning on a speed of twelve miles per hour, to pass a battery at a close range, they would be exposed just ten minutes from the effective range (assuming it to be a mile) on the approach, and for three or four minutes more to the longer ranges in receding. This period of time will be proportionately reduced from the extreme case of having to pass close to the battery to that of passing it one mile distant, where they will only be exposed for a few seconds.[1]

21. 'At Shoeburyness on the 15th May, 1868, the following experiments took place, to ascertain the probable effect of firing at vessels in motion:'—the target was a light timber frame 5 feet square, mounted on wheels, and attached by a long trail rope to a limber drawn by four horses—the range varied between 900 and 1000 yards. The rate at which the target moved was as follows:—1st, at a walk, the distance of 930 yards was traversed in nine minutes, at the rate of 3½ miles an hour, or 1·72 yards per second; 2nd, at a trot, the same distance was traversed in three minutes ten seconds, at a rate of ten miles an hour, or five yards a second. The nine-inch muzzle-loading rifled gun of 12 tons was first employed with a charge of 30 lbs. and a 250 lb. shot. It was mounted on a traversing platform moving on racers of 6′ and 16′ 6″ radii, and an imaginary front pivot. The gun detachment consisted of one officer and twelve men, all highly trained. The

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[1] Sir J. F. Burgoyne.

average velocity of the shot would be about 1320 feet per second, the time of flight for 1000 yards about 2·2 seconds, and the space through which the target would move in that time would be:—walking, 4 yards; trotting, 11 yards. The difficulties of aiming accurately at an object only 5 feet square, moving rapidly over a surface not altogether level, were therefore considerable. The next experiment, was made with a 22-ton gun, firing a 600 lb. shot, with a 50 lb. charge. This gun traversed on racers (described from an imaginary centre near the muzzle) laid on a turn table 22 feet in diameter, such as would be used in a fixed iron turret, with two or more ports. After each round, the muzzle of the gun was brought round to the loading position about 70° to the left. The supply of shot lay about 30 feet to the rear, on the same level as the turn table; they were rolled on skids under the muzzle of the gun, girthed by a sling of spunyarn, and hoisted by a small sheers and tackle to the level of the muzzle. The powder was in a position analogous to that which it would occupy if it had been hoisted from a magazine beneath. The gun detachment consisted of one officer and seventeen men, all highly trained.

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The conclusions to be drawn from the practice, which has been described, are to this effect:—

1st, The time occupied by a vessel in traversing one mile at a speed of ten miles an hour, would admit of a 9-inch 12-ton gun being loaded and fired seven times, and the 22-ton gun three times in each mile.

2nd, Crossing the range of a 12-ton gun mounted in a casemate, or in a battery, where the traversing angle is 70° at a distance of 1000 yards, at a speed of ten miles an hour, a vessel may be fired at six times; as the range is increased, or the speed is diminished, a proportionately larger number of shots may be fired at her—*Cæteris paribus*.—The 22-ton gun would have fired at her three times.

3rd, None of the shots recorded, would have missed an iron-plated vessel of the ordinary height above water.

4th, The 12-ton gun can be loaded, aimed, and fired with accuracy in less than one minute, the 22-ton gun in less than two-and-a-half minutes.[1] * * * * *

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[1] Report of the Committee on Fortifications. App. No. 2, p. 6.

22. *Extract from Admiral Farragut's, report on passing the batteries at Vicksburg, on 28th June,* 1862, *with the fleet under his command, consisting of fourteen vessels in all:* * * * * * "I passed up at the lowest speed, and even stopped once, in order that the *Brooklyn* and sternmost vessels might close up. The *Hartford* received but little injury from the batteries in or below the town, but several raking shots from the battery above the town did us considerable damage: they were 50-pounder rifle and 8-inch solid shot. The first passed through the shell-room in the starboard forward passage, and lodged in the hold, but did no other harm. The 8-inch struck the break of the poop, and passed through the cabin, but hurt no one; the rigging was much cut, and the main-topsail yard was cut in two. If the ships had kept in closer order, in all probability they would have suffered less, as the fire of the whole fleet would have kept the enemy from his guns a longer space of time, and when at his guns, his fire would have been more distracted. When we reached the upper battery, we soon silenced it, and it was reported to me that its flag was struck. We therefore gave three cheers; but when we had passed about three quarters of a mile above, they re-opened fire with two heavy guns."[1] * * *

23. *Extract from Commander Wainwright's report, of the passing the batteries, at Vicksburg.* * * * "We laboured under the great disadvantage of not knowing the situation of the batteries, which were only discovered by the flash and the smoke of their guns; some also were on high bluffs, rendering it difficult to elevate our guns to reach them. We were under fire about one hour-and-a-half, receiving it on the broadside, and being raked ahead and astern. The enemy fired with great precision, and although we silenced some of their batteries, they returned to them when we had passed, and our guns could no longer bear, and recommenced firing.[2] * * * *"

24. Admiral Farragut's fleet, with which he passed the heavy batteries of Fort Morgan, consisted of four iron-clads and fourteen steamers. Not a single one of the guns in the Confederate batteries was silenced by the torrent of shrapnel shell and grape poured into them, as each vessel passed. Admiral Buchanan's little squadron—iron-clad *Tennessee*, wooden gun-boats *Morgan*, *Selma*, and *Gaines*—made a

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[1] Von Scheliha. Chap. V.

[2] *Ibid.*

most heroic resistance. The channel had been partially obstructed, and not without all results; and yet the Federal fleet forced a passage, and the lower Bay of Mobile was lost to the Confederates.[1]

25. The only losses of ships sustained by a Federal fleet whilst passing Confederate batteries were caused by a vessel running aground, and remaining thus exposed to a heavy artillery fire, as in the case of the *Mississippi* and *Philippi;* or by a vessel striking a torpedo, as in the case of the Tecumseh. But sand-bars and torpedoes are, the ones natural, the others artificial, obstructions; and too much importance cannot be attached to this most potent element in coast-defence.[2]

26. *The Royal Commissioners reported in* 1860:—"We are, however, convinced that no practicable amount of fire from batteries can be depended upon to stop the passage of steam-ships, if the channel be sufficiently clear to allow of their proceeding at great speed. On the other hand, there is no reasonable probability of a fleet attempting such a passage, unless it can, by continuing its course, arrive at a space where it would be comparatively unmolested, and be free to carry out some object of importance, such as the destruction of a fleet or dockyard."

Forts versus ships.

27. A fort, is able to inflict far greater damage upon its assailant than the latter can inflict upon it; whilst it will hit the assailant nearly every time, the chances of the assailant hitting it more than once on the same spot are small. Further, one shot may send a ship to the bottom, whilst the fire from the ship during action is more or less inaccurate. There is no instance that I know of, of a fort ever having been breached by a ship in a naval action. In all the cases in which forts were breached during the late civil war in America, the attack was by batteries on land, from which fire can be directed leisurely, and with a precision that is unattainable in naval attack. In the cases of Fort Sumter, Charleston,—Fort Morgan, Mobile,—Fort Pulaski, Savannah, which are sometimes cited as instances of successful attack on masonry forts; the attacks which were successful were all from land batteries, and the forts were only thin brick structures.[3]

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[1] Von Scheliha. Chap. VI. [2] *Ibid.* Chap. VIII. [3] Jervois.

28. * * * It will be sufficient to remember, that the success of the French wooden ships of war, at Tangiers, Mogador, San Juan d'Ulloa, and also of the English wooden ships, at Algiers in 1816, at Beyrout in 1840, was chiefly owing to the inexperience of their opponents. The more recent honorable deed of arms at Kinburn, cannot be taken as an example, on account of the great superiority of the allied squadrons, opposed to the Russian fortress.[1]

29. *Admiral Dupont, in his report of the attack of United States Iron-Clads, on Fort Sumter, 7th April,* 1863:—*states,*

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"The Monitors and the *Keokuk* were able to get within easy range of Fort Sumter, at distances varying from 550 to 800 yards, in which positions they were subjected successively to a tremendous concentrated fire from all the batteries on Sullivan's Island, Morris Island, Sumter, and others of the most formidable kind, and from guns of the heaviest calibre. Not being able to place the *New Ironsides* where I desired, though she was within a distance of 1000 yards, and evening approaching, at 4° 30′, I made signal to withdraw from action, intending to resume the attack the next morning. During the evening, the commanding officers of the iron-clads came on board the flag-ship, and, to my regret, I soon became convinced of the utter impracticability of taking the city of Charleston by the force under my command. No ship had been exposed to the severest fire of the enemy over forty minutes, and yet, in that brief period, as the Department will perceive by the detailed reports of the commanding officers, five of the iron-clads where wholly or partially disabled: disabled, too (as the obstructions could not be passed), in that which was most essential to our success—I mean in their armament, or their power of inflicting injury by their guns.

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The other iron-clads, though struck many times severely, were still able to use their guns; but I am convinced that, in all probability, in another thirty minutes, they would have been likewise disabled."[2]

30. New Orleans was defended seawards by Forts St. Phillip and Jackson, on either bank of the Mississippi, with a boom extended across

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[1] Grivel.

[2] Von Scheliha, Chap. VII.

the river below them, consisting of a chain cable supported by a raft of logs, and eight hulks moored abreast, from 50 to 80 yards apart. Two Confederate iron-clads and thirteen gun-boats also assisted in the defence. Both forts were bombarded, at a distance of 2,850 to 3,680 yards, by mortar-boats, and by some ships under the command of Admiral D. G. Farragut, from the 18th April, 1862, for six days and nights. At four a.m., on the 24th April, the Federal squadron passed the defences under a heavy fire both from the forts and ships, a party having boarded one of the hulks, cast off the chains, and opened a passage in the boom. Eleven of the Confederate vessels were destroyed in the fight, whilst the Federal flag-ship *Hartford* (a wooden frigate) received thirty-two shot. These injuries did not, however, deter the admiral from pursuing his advantage, for at noon on the following day his squadron attacked, silenced, and passed two batteries which they found between Fort Jackson and New Orleans. In consequence of the passage of the forts, the city was evacuated by the Confederate Army, and the communications of Forts St. Philip and Jackson being cut off, they were surrendered on the 28th, four days after they were turned.[1]

31. The island of Lissa lies in the Adriatic, some thirty miles south of Spalato. Between it and the main land lie the islands of Lesina, Brazza, and Solta. Between Lissa and Lesina there is a strait of a breadth of about fifteen miles. In Lissa, there are two ports, those of San Giorgio and Comisa.

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On the evening of the 17th July, 1866, Persano issued orders that Admiral Vacca, with three iron-clad vessels and a corvette, should bombard Comisa; that the main force, consisting of eight iron-clads, a corvette, and a despatch-boat, should assail San Giorgio; and that Admiral Albini, with four wooden frigates and a despatch-boat, should effect a landing at the port of Manego on the south side of the island, in rear of the works of San Giorgio. Two vessels were to cruise on the north and east of Lissa during these operations, in order to give timely warning of the approach of the Austrian fleet. On the morning of the 18th, Vacca began to bombard the works of Comisa. He soon found, however, that his guns could not attain sufficient elevation to do much damage. He gave up the attack, and sailed for Port Manego. Albini, at Manego, for similar reasons as Vacca, could not effect a landing, and Vacca sailed to join Persano. The latter had begun to bombard San Giorgio at eleven in the morning; by three o'clock, when Vacca arrived, he had blown up two magazines, and silenced several of the Austrian batteries. He could not, however, succeed in sending his ships into the harbour, and the prosecution of the attack was postponed till the next day. On the evening of the 18th, the whole of Persano's fleet was assembled in front of San Giorgio, and in the night it was joined by the ram *Affondatore* and three wooden vessels. That evening Persano heard that the Austrian fleet was leaving Fasana to attack him. He calculated, however, that it could not approach Lissa before nightfall on the 19th, and determined to make a second attack upon the island on that day, and issued in consequence the following orders:—Albini, with the squadron of wooden ships and the gun-boats, was to attempt a landing at Port Carobert, south of San Giorgio. The iron-clads, *Terrible* and *Varese*, were to bombard Comisa, in order to prevent the garrison there from reinforcing that of San Giorgio. The floating battery, the *Formidabile*, was to enter the harbour of San Giorgio, and silence the batteries inside. Vacca, with the *Principe de Carignano*, *Castelfidardo*, and *Ancona*, was to support the *Formidabile*; the *Re di Portagallo* and the *Palestro* were to bombard the outside batteries; while Persano himself, with the *Re d'Italia*, the *San Martino*, and the *Maria Pia*, were to prevent opposition being offered to Albini's landing.

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[1] Fraser's Mag.

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The *Formidabile* entered the harbour, and taking post four hundred yards distant from the Austrian batteries at the extreme end, opened fire. A battery on the northern side told severely upon her, and Persano ordered the *Affondatore* to open upon this battery through the mouth of the harbour. This was done, but without much effect. Vacca formed his three iron-clads in single line, steamed into the harbour, and opened on the batteries inside; but he could not efficiently support the

Formidabile, both because she herself covered the Austrian batteries, and on account of the difficulty of manœuvring in the narrow space within the harbour, which is only about one hundred fathoms wide. He was soon forced to quit the harbour, and was followed by the *Formidabile*, which had lost sixty men, and suffered considerably. The latter was sent the same evening to Ancona for repairs.[1]

32. In the attack by the Allied Fleets, on the coast defences of Sebastopol; five results evolved by the conflict, are thus summarised by Mr. Kinglake.

(1) At ranges of from 1600 to 1800 yards, a whole French fleet failed to make any useful impression upon a fort at the water's edge, though its guns were all arranged in open-air batteries and firing from over the parapet.

(2) An earthen battery mounting only five guns (the Telegraph), but placed on the cliff at an elevation of 100 feet, inflicted grievous losses and injury on four powerful English ships of war, and actually disabled two of them, without itself having a gun dismounted, and without losing even one man.

(3) At ranges of from 800 to 1200 yards, and with the aid of steam frigates, throwing shells at a range of 1600 yards, three English ships in ten minutes, brought to ruin and cleared of their gunners the whole of the open-air batteries (containing 27 guns), which were on the top of a great stone fort, at the water's edge.

(4) The Allied fleet, operating in one part of it, at a range of from 1600 to 1800 yards; and in another part of it at ranges of from 800 to 1200 yards, failed to make any useful impression upon casemated batteries, protected by a good stone wall from five to six feet thick.

(5) Under the guns of a great fort by the water's edge, which, although it had lost the use of its topmast pieces of artillery, still had

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[1] Hozier, Vol. II.

all its casmates entire, and the batteries within them uninjured, a great English ship, at a distance of only 800 yards, lay at anchor and fighting for hours without sustaining any ruinous harm."* [1]

33. The fire was delivered from more than 1100 pieces of heavy artillery, whilst, to meet this great cannonade, the Russians could only bring to bear on the fleets 152 guns; and of those there were as many as 105, that were in open-air batteries firing over the parapet, so that there were only 47 casemated guns to meet all the broadsides of the Allied fleets.[2]

Co-operation of Naval and Land Forces.

34. The capture and destruction of Bomarsund with little loss, and in a very short time, by the skilful manner in which the military and naval forces co-operated with each other in those operations, are satisfactory illustrations— * of the success, which, * will usually attend all such well concerted undertakings. The forts were breached, and the fortress reduced to the necessity of surrendering, by a few powerful solid shot guns landed from the ships of the combined fleet. * * It is no disparagement to the naval forces to assert that they, alone, could not have demolished the defences of Bomarsund in so short a time, and not without much damage to the ships. The firing of shot and shells from the French and English ships, at long ranges, caused no serious injury; but the breaching of the forts, and the skilful establishment of a breaching battery within 400 yards of the rear of the fortress, rendered all further resistance vain.[3]

35. As regards attack by land, we have to provide against the great range, accuracy, and penetration of rifled ordnance; but the ordnance used by a besieger must still be comparatively light. Such pieces as our 12-inch or 600-pounders, weighing 23 tons,—as the

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* Of course, the value of the experience thus acquired by the Agamemnon must depend upon a question still somewhat obscure, *i.e.*, the number of guns in the casemates of Fort Constantine, which could really be brought to bear upon her. The impunity of the Rodney would be even more instructive than the experience of the Agamemnon, if it were not for the surmise referred to, *ante*, p. 445.

[1] Kinglake, Vol. III. [2] *Ibid.* [3] Sir Howard Douglas, Part III, Sec. X.

10-inch, or 400-pounders, weighing 18 tons,—as the 9-inch or 250-pounders, weighing 12 tons, or as the 7-inch or 115-pounders, weighing 7 tons,—together with the ponderous ammunition for them, cannot be dragged about on land. It was the armour-plating of *ships* that caused the introduction of these great guns, and it is *in* ships and *against* ships—not *in* forts or *against* forts intended only to resist land attack, that, they are required to be used.[1]

36. However successful a naval attack of a fortress or arsenal may be, the work of destruction can never be effectually accomplished by ships. The sea-defences may be silenced, guns dismounted, parapets ruined, magazines blown up by mortar-shells, and habitations devastated by the cruel process of bombardment; but no substantial demolition of the defences, or material destruction of the public works and property, can be effected unless the damages inflicted by the attacks of ships be followed up and completed by having actual possession of the captured place for a sufficient time to ruin it entirely. No naval operation, however skilfully planned and gallantly executed, can alone reap the fruits of its victory.[2]

37. * * The rule of the previous concert of the land and sea forces is not a recent idea. In general terms, no naval expedition is complete, no naval siege is practicable, without the addition of a corps for landing, ready to turn the position and to attack it on the land side. To this rule, it is true that we can bring forward, a notable exception, the capture of the Fort San Juan d'Ulloa (Mexico, 1839) by a French naval division, without a single soldier. But sagacious minds will not be mistaken:—"Les exceptions confirment les règles!"[3]

38. The attack of fortresses and powerful land batteries with a naval force only, must ever be a hazardous, and perhaps desperate undertaking. But if skilfully combined with a military force sufficiently strong to make good its landing, to invest the place or the batteries on the land side, to take the defences in reverse, and so open the way to the attack by sea, the object of the attack will in general be successful. But this mode of proceeding can only be applied when the place to be attacked occupies a position, insular or otherwise, of such extent as to admit of being attacked by land as well as by sea. In combining

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[1] Jervois. [2] Sir Howard Douglas, Part III, Sec. X. [3] Grivel.

military and naval operations of this description, the first and main difficulty to be encountered is to effect a landing and establish a lodgment on the enemy's coast, in the face of a large military force, which ought always to make the most determined efforts to oppose a debarkation or prevent a lodgment from being made good; for, as in the assault of a breach, and in forcing the passage of a river, if a solid lodgment be once established on the crest of the one, or on the further side of the other, a fulcrum is obtained which, if skilfully used, and supported with sufficient means, will ensure the success of the enterprise.[1]

39. When the place, fortress, or arsenal to be attacked is covered and protected by isolated points of defence, mutually protecting each other, and when no previous military operation can be made, those points or outposts should be attacked in detail and successively reduced; after which the fleet may arrive at, and attack the main position. This must evidently be a protracted and difficult process, even with such means; with ships alone it cannot be effected without severe loss and damage; and it should always be remembered that many of the attacking ships would be severely injured, probably disabled, in the attempt, whilst the enemy's fleet would remain untouched and in reserve. It would therefore follow that the attacking fleet must be exposed to a very disadvantageous action with the enemy, in the event of the latter subsequently leaving his place of shelter.[2]

40. Vertical fire is proverbially uncertain, but when employed for its legitimate purposes, to bombard large spaces, very great and terrible execution can be produced by firing large shells at high angles.[3]

41. The bombardment by the French squadron of San Juan d'Ulloa in 1838, and of Vera Cruz in 1839, may be taken as proofs of the uncertainty of vertical shell practice against castles or other small places.[4]

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[1] Sir Howard Douglas, Part II, Sec. X. [2] *Ibid.*, Part III., Sec. X. [3] Owen.
[4] Sir Howard Douglas, Part III, Sec. X.

Batteries en barbette.

42. The simplest form of battery for guns, is one to fire *en barbette.* In this case, there is no difficulty about the construction of embrasures, the requisite protection for the guns and gunners against horizontal fire being obtained by an unbroken parapet. The exposure to which the artillery would be subjected in batteries on a comparatively low level, if the guns were always seen above the parapet, renders it undesirable, however, to construct batteries *en barbette,* except at a considerable elevation, say about 100 feet above the sea, in which case the guns and men working them are scarcely seen from seaward. It is, however, undesirable in any case to construct batteries *en barbette,* where they would stand out in strong relief against the sky line. The advantage of a barbette battery, is the great extent of lateral range of the guns which can be obtained, and it is a question on which differences of opinion have always arisen, according to the taste of the individual, whether it is better to obtain this at the probable expense of gunners' lives, or to have a limited amount of lateral range, coupled with greater security.[1]

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43. The calibre and number of guns supposed to be equal, a battery, the guns of which are mounted *en barbette,* may always be silenced by an iron-clad, protected by plating of sufficient thickness. But an enemy will always have the advantage of being able to concentrate against any number of guns ashore, a larger number of guns on his ship: he may commence an engagement or break it off at his own convenience; may choose his own ranges and positions, and use his shrapnel with terrific effect against so desirable a mark as a gun mounted *en barbette,* must be to the naval gunner. Masking the guns of the batteries with sand-bags, and retaining the fire till the enemy has approached to within so close a range that the fire must necessarily produce a severe effect on the iron-clad, or iron-clads, against which it is concentrated, is probably the best way of fighting a barbette-gun battery; yet the battery will, after all, in nine cases out of ten, be silenced by the rapid firing of the superior number of guns brought against it. Therefore, in order to

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[1] Jervois

build a battery able to cope with modern iron-clads, it is not only necessary to avoid in the construction of the battery, all material not able to withstand the effect of a heavy artillery-fire, but it is also absolutely necessary to give to guns and gun-detachments a more efficient protection, than is afforded them by mounting the guns *en barbette.*[1]

Turrets.

44. The lateral range obtainable in the barbette system, combined with the protection afforded by the embrasure and iron shield plan, can be obtained by the employment of turrets, which may be employed without reference to the elevation of the battery above the water. * * The objection to turrets is, that they are very expensive. *

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The question then arises whether that amount of money can be applied to any other kind of work, so as to afford a more powerful fire upon the space to be commanded than can be obtained from two guns in a turret. In many cases it will be found that it *is* so; in other cases, however, like the Spithead forts, where the works are entirely surrounded by water, it will be found that in order to employ the most powerful guns with the greatest effect, it is necessary to employ turrets.[2]

Moncrieff's Carriage.

45. The great point of this invention is, that it enables us to protect guns in open batteries, by a parapet unweakened by openings, and thus to have the advantage of the great lateral range of barbette batteries, even at a low level above the water, without exposure, except at the moment of firing; it enables us, at the same time, to avoid using iron shields at the embrasures of opening batteries, and thus to effect a saving of expense.

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[1] Von Scheliha, Chap. IV.

[2] Jervois.

Works constructed for carriages of this description will not afford protection against vertical fire, nor are they applicable in cases in which casemated structures are necessary.[1]

46. Captain Moncrieff, observes, "It is obvious that the possibility of dispensing with a parapet without losing the command of the front of the battery, would give an advantage of an important kind. This advantage, I seek to obtain in its greatest degree by employing gun-pits, in which all the vital parts of the carriage remain below the level of the surface, and the gun itself is only exposed when it is going to be fired.

"For coast batteries liable to be opposed to the heaviest artillery in ships, a very strong work is now absolutely required to protect the guns from the terribly destructive effects of modern projectiles, which have a penetration far beyond what was dreamed of when most of the existing fortresses were built; and, as accuracy of fire has increased, as well as its power, the guns cannot be mounted *en barbette*.

"In order, therefore, to be efficient, coast batteries must be of great strength, and proportionately expensive, especially when iron is used in their construction.

"I wish this to be borne in mind, while I point out that by taking advantage of the natural undulations of the ground, scarping down the rear of hillocks to make them into batteries, and applying the skill of our military engineers to use whatever nature has supplied in each place, many positions might be defended on my system from the attacks of the heaviest artillery, at a small per centage of the cost which is now required to construct batteries with iron embrasures, cupolas, &c.; and that, notwithstanding the economy of these works, they would be probably as invulnerable as their more expensive rivals."[2]

Casemated sea batteries.

47. A work for sea-defence must be casemated when it is necessary to provide by tiers of guns, an amount of fire which cannot be obtained by a lateral extension of the work. A sea-battery should be casemated, when otherwise it would be liable to be plunged into by fire from ships.

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[1] Jervois. [2] A. Moncrieff.

Casemates are also required in some cases when it is necessary to secure the battery against the fire of infantry from the rear, and when this cannot be effected by traverses, or when the work is on the side of a hill, or lying in front of another battery, must be secured from splinters of rocks or shells. It will be found in many cases that for sea-batteries, a casemated construction is on the whole not only more efficient, but more economical than a fort with an earthen parapet, supposing the same numbers to be provided for in each case. The reasons for this are, that whilst in an open earthen battery, the barracks, magazines, and other accessories have to be provided for separately, and the defensive enclosure must be of large area,—and in addition to the battery:—in a casemated work, the battery, barracks, magazines, &c., are provided under the same roof, and the defensive enclosure, which is comparatively small in extent, is formed by the casemated structure itself.[1]

48. Fort Sumter, at Charleston, was in great part only five feet thick, and nowhere more than eleven feet thick; the most powerful guns in it were two 7-inch pieces, but it beat off a fleet consisting of eight turreted ships (Monitors), and one broadside ironclad of sixteen guns, armed with 15-inch and 11-inch American guns. One vessel, the *Keokuk*, sank after the action, owing to the effects of the fire from the fort. Many say that granite casemates with iron embrasures will not stand naval attack; but the experience of men like General Ripley, who commanded in the defence of Charleston against the attack of the Federal iron-clads, and with whom I have had the advantage of conferring on the subject, and the recent examples from the American Civil War, considered in connection with our own experiments, do not, in my judgment, so far as our present information goes,* bear out this view. Our granite casemates, with iron shields at the embrasures, are certainly as capable of resisting the guns of the present day, as Fort Sumter was the American 15-inch and 11-inch guns of 1863.

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Bearing in mind these views, there are many cases in which granite forts with iron shields at the embrasures, will, if powerfully armed, afford the required protection. Where, however, a work is entirely isolated, and from its position specially liable to a concentrated fire, or where the foundations being in deep water are very limited in extent, it is no doubt desirable that the cover in front of the guns should be wholly iron plated, as, for instance, in the case of the Spithead forts.[1]

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* June, 1868.

[1] Jervois.

Earth and Sand Batteries.

49. *Earth, especially sand-works, properly constructed, a better protection against Modern Artillery than permanent Fortifications, built on the old plan.*

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Rear-Admiral David D. Porter says in his report of 7th February, 1863, "On the morning when the ram, *Queen of the West*, went by the batteries at Vicksburg, I had officers stationed all along, to note the places where guns fired from, and they were quite surprised to find them firing from spots where there were no indications whatever of any guns before. The shots came from banks, gulleys, from railroad depôts, from clumps of bushes, and from hill tops 200 feet high. A better system of defence was never devised.

"Vicksburg was by nature the strongest place on the river, but art has made it impregnable against floating batteries; not that the number of guns is formidable, but the rebels have placed them out of our reach, and can shift them from place to place, in case we should happen to annoy them (the most we can do) in their earthworks.

"In a report I made to the Department, while attached to the mortar flotilla, I remarked, 'That the Navy could silence the water batteries whenever it pleased; but that the taking of Vicksburg was an army affair altogether,' and it would have to be taken by troops. At that time it mounted 20 guns, all told, scattered along as they are now, and 10,000 men could have marched right into it without opposition.

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"The people in Vicksburg are the only ones who have, as yet, hit upon the method of defending themselves against our gun-boats, viz: not erecting water-batteries, and placing the guns some distance back from the water, where they can throw a plunging shot, which none of our iron-clads could stand."

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[1] Jervois.

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Rear-Admiral Porter gave in his report to the Secretary of the Navy a fair account of the situation near Vicksburg: he succeeded repeatedly in driving the men from their pieces, and in temporarily silencing the Confederate batteries by a most furious fire, concentrated on them from his fleet; yet no injury of any note was done to those earthworks, and Vicksburg only fell after General Grant's large army had invested the place, and for several months had carried on regular siege operations.[1]

50. Amongst the general remarks of Lieut.-Colonel Von Scheliha, relating to coast defence, during the late American civil war, are the following:—

"All officers of the Navy and of the corps of Engineers, who, during the American war, had opportunities for gaining practical experience in the attack on and defence of positions along the coast, no matter on which side they gained this experience, agree that sand or earth is the cheapest and best material that could be used in the construction of batteries.

"The reduction of such works, properly constructed and provided with bomb-proofs, when left to the Navy alone, required a long time and great expenditure of ammunition.

"Guns mounted *en barbette*, may be silenced by a superior number of guns being brought against them.

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"Wherever the position will allow, a scattering of the guns is preferable to placing them close together. A disposition of this kind does not exclude a concentration of fire from all guns, while it renders it more difficult for the enemy to effect a concentration of his fire on any one battery."[2]

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[1] Von Scheliha, Chap. III.

[2] *Ibid.*, Chap. IV.

SECTION II.

CHANNEL OBSTRUCTIONS.

1. Channel obstructions being essentially an element of a purely defensive warfare, in the strictest sense of the word, distinguished navy officers of great maritime powers have opposed them, for the weighty reason that any obstruction placed in the channel must necessarily more or less interfere with the free operations of their own fleet, which, by them, is justly considered the most natural agent in coast defence. And certainly nothing could be more logical than that there exists no necessity for channel obstructions, as long as there is a fleet strong enough, unassisted, to cope successfully with that of the enemy. But, under such circumstances of favourable nature, the enemy, even without the assistance of costly fortifications, would be driven back before being able to effect his approach to the shore. A second case presents itself. Whilst it would be reckless for a squadron to advance and give him battle beyond the range of the shore-batteries, protecting the entrance to the port, the number of iron-clads composing this squadron might be sufficient to form an obstruction capable of keeping the enemy's fleet, should he attempt to force a passage, under a heavy concentrated fire of both batteries ashore and afloat. In this instance, the iron-clads would serve as an obstruction, and therefore a further channel obstruction would hardly be needed. Yet there is not always sufficient space in or near an entrance to a port, with advantage to manœuvre a strong flotilla of such floating-batteries. They then are in the way of each other, cannot bring their guns to bear on the enemy's ships, and collisions occur, as was the case in the Confederate flotillas stationed under Captains Mitchell and Montgomery, near Forts Jackson and St. Philip. An attacking fleet, on the other hand, needs but a narrow front under such circumstances. Admiral Farragut's favourite plan of attack was, either to form in two divisions—as in passing the batteries of Forts St. Philip and Jackson, when the fleet was exposed to a heavy fire from both banks of the Mississippi river—or to lash his ships in couples together, form a closed up-line, steam ahead, discharge broadside after broadside when abreast of the shore-batteries, (mostly

using shrapnel and grape, to prevent the artillerymen from working their guns; and so, after having passed the shore-batteries, in pursuit of the floating-batteries opposing his further progress,—as in passing the batteries of Fort Morgan. The Federal attack would not have succeeded,—nay, it would even have resulted in disaster to Admiral Farragut's fleet, had it been possible to obstruct the channel between Fort Morgan and the eastern bank. In no single instance during the North American war, did a naval attack succeed where the channel had been obstructed; and in no single instance did it fail where the channel had remained open. Therefore, whenever the fleet alone, or shore-batteries and a strong flotilla of iron-clads, with abundant space to manœuvre in, combined, are not able to force the enemy to retreat, channel obstructions are indispensable.[1]

2. Neither Mobile nor Charleston, Wilmington, or Savannah, could ever have been taken by a naval attack alone; the obstructions placed in the channels leading to these places formed an insurmountable obstacle to the progress of a fleet; and no iron-clads could have withstood the concentrated fire of the heavy batteries, that would have prevented the removal of any part of these obstructions.[2]

3. * * The Confederate navy being inconsiderable in number, and quite unable to cope with the powerful fleet opposed to them, the obstruction of the channels was not fraught with much inconvenience to themselves, though there were some positions in which it was necessary to leave open channels of approach for the use of blockade-runners, and other friendly vessels. So effectually was this mode of defence resorted to, that the Federal navy were unable to effect the passage of the batteries at Charleston, Mobile, Wilmington, Savannah, and the James River below Richmond, until, on the capture of these places by the military forces, the obstructions could be searched for and removed. But for the obstruction to navigation in the James River, nothing could have prevented the squadron, under Federal Admiral S. P. Lee, penetrating to Richmond, and taking Confederate General Lee's position in reverse.[3] * * *

4. Admiral Dupont's iron-clads, were obliged to withdraw their attack on Fort Sumter, after an engagement of hardly forty minutes'

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[1] Von Scheliha, Chap. IX. [2] *Ibid.*, Chap. VII. [3] Fraser's Mag.

duration; yet every one of these Monitors had a turret the plating of which was much thicker than the casemate armour of the *Dunderberg* (this is only 4·5″), and no heavier piece of ordnance than the 10-inch Columbiad was at that period used in the Confederate States' service. The rope-obstructions which had been placed between Forts Sumter and Moultrie proved themselves of the greatest value on that day.[1] *

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5. The difficulties opposing the establishment of a channel obstruction, often are very great. There are strong and changing currents, great depth of water, a heavy sea, bad bottom, and many other difficulties, that will contend against the engineer, and which should induce him well to mature his plans before commencing the work. Such a deliberation will develop the necessity of some preliminary work—for instance, abutments, driving of piles, &c., without which it would be impossible to establish any kind of obstruction. A system of channel obstructions proper, may consist of:—

(1) Obstructions resting on the bottom of the channel.

(2) Floating obstructions.

(3) A combination of these two systems, which will generally be used where a gap for the passing of vessels through the obstruction is required * * *

It is self-evident that an obstruction has to be laid within the range of shore or floating-batteries; for, otherwise, the enemy would not only be enabled unmolested to proceed to the removal of the impediments opposing his progress, but also the obstruction would fail to fulfil a principal object—that, of keeping the enemy's ships under a heavy concentrated fire of the batteries.[2] * * *

Sunken Vessels.

6. In 1854, the Russians obstructed the entrance to the Bay of Tchernia, by sinking most of the ships composing their Black Sea flotilla. The Confederates, in 1861, had no men of war thus to dispose

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[1] Von Scheliha, Chap. XI.

[2] *Ibid.*, Chap. IX.

of: but many a fine merchant-man, useful coaster, and swift-sailing fishing smack were scuttled and sunk to form an obstruction in the approaches to Mobile and other southern sea-ports. The objections to such a course, are obvious:—

(1) The means of active defence, are thereby weakened.

(2) An obstruction of this class, is the most expensive of all.

(3) The amount of transportation is considerably lessened, a circumstance which has made itself very seriously felt during the late North-American war. The engineers at Charleston, Savannah and Mobile, found themselves very often seriously embarrassed for want of suitable crafts in which to send building material, sand-bags, &c., to detached points with which communications was only possible by water.

This method of obstructing a channel should therefore be used only in case of the most urgent emergency. But if used, the vessels should be well filled with materials, the weight of which will keep the sunken vessel, in its place. * * * * *

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It has also been proposed to sink, instead of valuable vessels, large pontoons, or enormous flats, built of strong timbers and planks expressly for this purpose. The pontoons or flats, are to be held together by strong cables and braces, and are intended to form the foundation for a system of *chevaux-de-frise*, constructed of iron.[1] * * *

Rocks, Piles, Chains, and Booms.

7. Large masses of rock thrown into a channel will form an excellent obstruction; yet the instances, will be few in which the material required may be easily obtained. * * *

Obstructions formed by piles, may be advantageously used if the depth of the channel does not exceed 25 feet, and the nature of its bottom renders the driving of piles not an impossible or too tedious a work. * * * * * *

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[1] Von Scheliha, Chap. XI.

The upper surface of an obstruction 'of chains and booms,' is too narrow, to grant any possible hope that a vessel running on it should be prevented from working her way over the boom. Instead of one single line, two and more lines of booms might be placed and connected by strong chains with each other. The width of surface and the strength of the obstruction, would thereby naturally be increased in proportion. But under no circumstances could too much stress be laid on firmly securing the end sections of the boom, next to the shore or bank, by stout cables to strong abutments. The floats should be anchored, so that instead of laying across the current, presenting to its pressure a comparatively large surface, they should float parallel with it, presenting only their pointed ends to the current, against which the pressure would be less. Torpedoes and rope obstructions, should be used in connection with the boom.[1]

8. Chains and booms were, during "the American civil war", first used on the Mississippi river. A chain supported by logs was extended across the river near Fort Jackson. Admiral Farragut ordered a petard to be fastened to the chain, and thus opened a passage without great difficulty.[2] * * * * *

9. Resilient structures formed of chain and other cables, floated across the channel upon pontoons, masses of timbers, or small ships, have been amongst the most effective obstructions employed. It was to an obstacle of this kind, that the ships of the allied squadrons at Obligado, in 1845, owed the heavy losses sustained by their detention under batteries which could not be turned, until Admiral Sir James Hope sawed through the cables and opened the passage. A similar obstacle in the Peiho, in China, in 1859, led to severe losses in men and ships, and our ultimate defeat by the Chinese defences.[3]

Ropes.

10. Confederate engineers, frequently made use of rope obstructions to bar a channel, the depth of which prevented the placing of piles, &c. They were principally used in Charleston harbour, where they con-

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[1] Von Scheliha, Chap. XI. [2] *Ibid.* [3] Fraser's Mag.

tributed so much to the successful defence of that important port. They consisted there of a line of buoys made of palmetto-wood, and rounded at both ends, thus rendering them nearly undiscernable at any great distance, and especially at night. To these floats or buoys, was attached a 7-inch hawser by two heavy iron staples. The floats were about 20-feet apart, and at intervals were anchored with heavy grapnels. From the hawser, which was shroud-laid, hung down a lighter rope. The buoys were also made of yellow pine, 39-inches long and 15-inches in diameter. These obstructions were placed in sections of twenty-five buoys, the hawser passing through the staples being anchored at each end and in the centre. At the termination of one section, another, constructed and anchored in the same manner, commenced, till the whole width of the channel was thus filled. Two and three rows of these obstructions were placed at a distance of about 100-feet apart; therefore, if a vessel had succeeded in passing through one line, she would have had to pass another one or two still before being out of danger of fouling them. Although the Federal fleet did never again approach these obstructions after Admiral Dupont's first attack on Fort Sumter, April 7, 1863, had failed, and their value, therefore, was not practically tested by the enemy's vessels actually coming in contact with them, some idea of what it really was, may, however, be formed by the accidents that happened to Confederate vessels which came in too close proximity to them.

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One of the blockade-runners (a propeller), was going out of the harbour, when she caught in these obstructions, which stopped her engine, so that she could neither go ahead nor back, and had to be towed back to the city and put in the dry dock, when it was found that the rope had worked into the journal.[1]

Torpedoes.

11. Obstructions are of two kinds, passive and active. Passive obstructions may consist of rafts or barges, booms of timber, chains, nets, wire or rope, sometimes (in places which it is unnecessary to keep open)

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[1] Von Scheliha, Chap. XI.

of piles, stones, dams, or sunken vessels. The attention that has been given during the last few years to the application of submarine-mines has, however, rendered it improbable that we shall find it necessary to use *passive* obstructions. Active obstructions, or submarine-mines have become of especial importance since iron-armour has been applied to the sides of ships of war, these vessels being most vulnerable in their bottom. Submarine-mines should, * be placed between the forts or batteries on either side of the channel which they are intended to defend. They may also be employed in connection with either fixed or floating batteries, to prevent an enemy occupying any particular position within range of the guns from which it is desired to exclude him. Attempts had been made by the English so early as the 17th century, to apply floating and submerged charges of gunpowder for purposes of offence and defence. The Russians in 1855, however, were the first to apply explosive machines of this kind with any approach to success: and, although the mechanical self-acting torpedoes which they laid down in the Baltic were somewhat defective of construction, there is little doubt that they might have produced disastrous effects upon our ships, had the charges of gunpowder employed in them been sufficiently large. The Russians were also the first to attempt the employment of electricity for the explosion of torpedoes, though their arrangements for this purpose never appear to have been placed in position for actual use.[1]

12. The next advance in the use of torpedoes, was made by the Austrians at the time of the threatened attack on Venice by the French, in 1859. Here, Baron Ebner employed them to defend several of the more important channels, and organised a very elaborate and well considered plan of defence. These torpedoes were arranged to explode by electricity. A system of insulated electric wires, which extended from the shore to each torpedo, placed them under the control of the operator. In planting these torpedoes, their positions were registered upon a miniature plan of the harbour, by a very ingenious application of the camera-obscura. By this device, it became unnecessary to mark the positions by buoys.[2]

13. The successful results attending the employment of torpedoes as engines, both of attack and defence, by the Americans, and more espe-

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[1] Jervois.

[2] N. T. Holmes.

cially by the Confederates in the recent war, have attracted considerable attention to these engines of destruction. Though the means at command were limited, and the arrangements generally of very crude description, there are official records of the destruction of no less than twenty-four ships of the Federal States, and of the injury of nine others by means of torpedoes. The progress made in the application of these mines during the Civil War in America, is shown by the fact that whilst in the year 1862 only one Federal vessel was destroyed, in the first four months of the year 1865, eleven were destroyed or sunk, and four injured. If it is considered that the area of water or passage to be defended may be perfectly closed against *friendly* vessels without disadvantage, the employment of torpedoes which are exploded by self-acting *mechanical* contrivances present advantages over torpedoes which are exploded by electricity, as being less costly, and more expeditiously placed in position.

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These mechanical torpedoes are, however, altogether inapplicable in positions where it is desired to keep the water open to friendly vessels, and to close it effectually against an enemy. In such instances it is indispensable that submarine-mines should be arranged to be exploded by electric currents. Electric torpedoes or mines may either be self-acting, *i.e.*, their explosion may be accomplished by the collision of a ship with them, or with a mechanical arrangement floating near the surface and connected by an electric cable with the mine beneath; they may also be exploded at will by operators on shore, when a ship is observed to be over them or in their immediate vicinity; or they may be so arranged, that the collision of a ship with the self-acting mechanism with which they are provided, will instantly give a signal at the station on shore, whereupon the mine may be at once exploded by the operator at the station. Lastly, the torpedoes may, by simple means, be so arranged, that they may be either exploded spontaneously by a passing ship, or at the will of the operator on shore, in the possible event of the ship not coming into contact with the self-acting trap. The torpedoes would be placed several fathoms below the surface, and at such distances apart that the explosion of one would not injuriously affect those in its vicinity. Their charges would be sufficiently large to ensure the destruction of a ship by their explosion, not merely when immediately over one of them, but even if any portion of her were within forty or fifty feet of that position. It is obvious that by arranging the torpedoes in two or more chequered lines, a vessel, even if passing harmlessly between two torpedoes in one line, must come within destructive range of a torpedo in the second or third line. The placing of torpedoes at considerable depths, and their arrangement for optional explosion from on shore, must render it extremely difficult for an enemy to interfere with such a defensive arrangement, and such interference is impossible if the area of the water defended, is guarded by artillery. It is often stated that the torpedoes may be removed at night, but this objection is effectually met by lighting up the channel by the electric or other lights which may be employed for that purpose.[1]

14 To the Americans belong the credit of first applying the torpedo as an offensive weapon, to be employed by ships against one another. The principle on which this operation is conducted, is based on the ascertained limited destructive area of given charges of gunpowder, employed at given depths.[2] * *

15. It was not until the 5th May, 1864, that an outrigger-torpedo was fitted to a Federal ship of war. The occasion is noteworthy, for other reasons also. * * * * * *

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* * That any ship of any size or build could safely employ torpedoes in this manner, is now plainly evident, and there can be little doubt but that future naval actions will be greatly influenced, if not actually decided, by the skill displayed in manœuvring the hostile ships, so as to bring their torpedoes within effective range. To run into or ram a vigilant enemy, so as to sink his ship, is a delicate operation, necessitating a blow nearly at right angles to the broadside; but the process of torpedoing can be accomplished whilst alongside of or astern of the enemy, and is not to be easily eluded by the action of the helm. It can only be escaped by superior speed. If, for example, the Austrian fleet had been so equipped at Lissa, the attempt to ram the Italian ships, which was only in one case successful, might have been succeeded by explosions whilst passing through the line, which might have destroyed many of the opposing fleet. The lessons which we may gather from the torpedo warfare in America, show,—1st. That without

this auxiliary agency, no system of fortification will prevent an enterprising foe from passing through an easy navigable channel, if a sufficient object is to be attained by doing so, and if a point of safety exists beyond the batteries. 2nd. That the torpedo is a powerful weapon of offensive war, which may be employed not only by steam-vessels of the mercantile marine for their own defence, or that of our seaports, but also by ships of war, of all classes, in actions at sea. The position of future blockading squadrons will be by no means agreeable, for whilst they can send their boats into the blockaded port at night, to blow up the enemy's ships, the besieged can, with even greater facility, send forth torpedo ships or boats at night, which would render it impossible for the blockaders to remain at anchor.[1]

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[1] Jervois. [2] Fraser's Mag.

16. The question arises, how far, if at all, does the use of submarine-mines affect the employment of forts and batteries for defence against naval attack? * * Forts and batteries are still required in all important cases to cover the torpedoes, and prevent their being tampered with. It must also be remembered that whilst the submarine-mine is harmless, unless the ship comes near it, the shot from the battery can injure the ship, whatever may be her position, within effective range. Further, although probably our harbours might be efficiently obstructed by torpedoes in at from seven to fourteen days' notice, yet one condition is that the weather should be sufficiently favourable to allow of their being exactly laid. There are again certain positions where, even if the torpedoes *are* laid, they might be disturbed by a violent storm, and possibly an attack on the positions in which they were to serve *might* take place before they could be renewed; and though the periods of the year at which these difficulties might arise are short, yet the bare possibility of interference, in the applications of a complete torpedo system, prevents our entire reliance on such a defence for the protection of places on which the warlike power of the nation, both for offence and defence, must, in a great measure, depend. Therefore, although submarine-mines are a most important element in the defence of our harbours and coasts, and add greatly to the power of our forts to resist a naval attack, yet they must not be regarded as substitutes for permanent works of defence at our naval arsenals and

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[1] Fraser's Mag.

harbours, and other important ports. Submarine-mines would not only be of immense advantage for the defence of harbours in time of war, they would also, in conjunction with small gun-boats, be most valuable for the protection of places on the coast, like St. Leonards or Brighton, against privateers who might, perhaps, in the absence of other defence (which in these cases cannot be applied on shore) levy contributions upon the inhabitants of these and other watering places.[1]

Section III.

LANDING OF ARMIES.

1. The form of a coast has great influence on the success of a landing of troops by open force and in face of an enemy. On low coasts, such as Romney Marsh, the beaches are not steep; the tidal currents, or rather eddies, are weak, and the water is shallow, to a considerable distance at sea; so that ships would be unable to approach near the shore, and the boats conveying the troops to land would have great distances to row, under a most destructive fire from the fixed or moveable batteries which are to oppose the debarkation; which, moreover, can only take place at the top of high water—a limitation as to time, which is very disadvantageous to the invaders. A gently sloping beach indicates that the land is gaining on the sea, and offers facilities for obtaining a footing on the shore; but even here the downs or hills of shingle, thrown up by the waves in gales of wind, often considerably above high-water mark, afford behind them some cover from the fire of the ships for the troops, who should be stationed there, in order to spring upon the enemy when in the act of landing. On the other hand, when the land is high and the beach abrupt, ships may get near, and the boats would have a short distance to be rowed; but here the tidal currents are so strong that row-boats will scarcely be able to stem them, or keep in due order. A steep shore indicates an encroach-

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[1] Jervois.

ment of the sea on the land, and in this case a range of high ground is not far behind, which will afford commanding positions for the main body of the defenders, who, from thence, on whatever part of the beach in front the invaders may attempt to disembark, can see all their movements; and should these succeed in effecting a landing, may bring them with advantage to a general action. An invading force will scarcely venture to land in a small bay, subject to the crossing fires of batteries placed on the promontories between which it is contained. The effort would, more probably be made in a capacious bay whose capes are remote from each other, or on a straight line of beach, where the landing might be protected by converging fires from the ships on both flanks.[1] * *

2. A very large army may now be transported with great speed and convenience in a very few large steam-ships, to any seat of war, however remote; but to transfer 1000, 1500, or 2000 men from the transports to the shore is a work of considerable time, and requires great numbers of boats, specially constructed for that purpose. This preparatory operation cannot be attempted or executed under fire from the enemy; and, therefore, the troops intended to force a landing, must be embarked in the boats which are to take them to the shore, whilst the transports are anchored at a safe distance. The success of the operation will mainly depend upon the nature of the locality that may be chosen. It should not be too near to the fortress or stronghold to be attacked, because, in this case, the garrisons of the forts, or fortresses, might safely co-operate with the force in the field, to oppose the landing and attack the lodgment. Nor should the point of debarkation be too distant from the great objective of the expedition, because that would necessitate a long march to invest the place, and much difficulty in getting up the siege-train and stores. How strikingly were these principles exemplified in the miseries suffered by the British army during the invasion of the Crimea in 1854–55, from the inconvenience of the harbour at Balaklava, and the distance from thence to the scene of the operations before Sebastopol. If the enemy (exclusive of the force in the garrisons) is not strong in the field, it might be advantageous to endeavour to seize some capacious bay or inlet capable of affording a

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[1] Douglas.

shelter to the numerous ships, vessels, and small craft, and near which a fort might be constructed to serve as an *entrepôt* and base of operations; but these great objects can rarely be effected immediately: indeed, if the enemy has occupied and strengthened the localities, and if he is, moreover, strong in the field, it would not be prudent to attempt a landing there. In this case, some point, deemed apparently by the enemy of minor importance, should be sought for—some promontory, with a nearly level surface, and remote from high lands, having also water about it of sufficient depth to permit the boats to arrive at the beach, and to enable bomb-ships, steamers and gun-boats to cover the advance of the flotilla containing the troops, support their landing, and protect the lodgment they may form. Having thus obtained a footing, and received such increase of strength as may be deemed necessary, including field-artillery, the whole force should move forward to meet the enemy in the field, and conquer for itself some position which may afford shelter to the fleet, and become a *tête-de-débarquement* and base of operations to the invading army. In forcing the passage of a river, the operation is undertaken, if possible, in a sinuosity re-entering, with respect to the invaders, and a lodgment is made upon the opposite salient in the enemy's position; the whole interior of that position is commanded from the points in the possession of the assailants, and consequently the lodgment to be made is capable of being supported and protected. In like manner, in order to obtain a footing on an enemy's coast, a low level promontory or salient should be chosen, because ships on each side of it may perform the same office (commanding the opposite ground) as, in forcing the passage of a river, is performed by the batteries placed at the two salient points which contain between them the re-entering sinuosity. The ships are thus enabled to support the lodgment on the coast and protect the flanks of the troops which have gained the shore. To attempt to force a landing in a bay reverses these conditions, for the shore of a bay, unless it be very extensive, cannot be held, nor even approached, until both the promontories which contain it are occupied.[1]

3. Where steam ceases to be useful to the invaders, it becomes most so to the defenders of the country, who during the whole time

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[1] Sir Howard Douglas, Part III, Sec. X.

that the operation of attempting to land is being made, will, warned by the electric telegram, be employed in bringing up, at the maximum of railway speed, all the active forces in part of the country, and concentrating them on the menaced point.[1]

4. When the late Duke of Wellington visited the coast defences—on the alarm of an invasion soon after the accession of Louis Napoleon, the present Emperor of France, to the Presidency—His Grace, being at Seabrooke between Sandgate and Hythe, conversing with his staff and the other officers, the principles of permanent camps and the other fixed defences became the subject of discussion: when the Duke used the following expressions. "Look at those splendid heights all along this coast:—give me communications which admit of rapid flank movement along those heights, and I might set anything at defiance."[2]

Landing of the English troops in Holland.

5. The expedition under Sir Ralph Abercromby, which may be considered as the advanced guard of the Allied army, destined to act against the French in Holland and the Low Countries, left the shores of England on 13th August, 1799, escorted by a strong squadron of ships of war, commanded by Admiral Mitchell. The military force was composed of fully 10,000 men, and of a good quality.

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The orders which our commanders had received were in some degree discretionary. A landing on the island of Goree was prescribed as the first object; and from thence it was proposed that the united force of British and Russian troops should penetrate into the heart of the Low Countries. But the Helder was a point which the British Government had much at heart, for the sake of capturing the Dutch fleet in the Texel, and destroying the naval magazines at that station. Although our expedition put to sea at the most favourable season, such was the stormy and perverse character of that disastrous year, that the landing of the troops at the mouths of the Scheldt and the Meuse was found to be impracticable; nor was it till the 21st of August that our ships were able to approach the coast near the entrance of the Texel. Preparations were made for landing on the following day, but in vain, for our fleet was again forced to sea by a gale of wind; nor was it till the 26th that it could return to the point which our commanders had in view, and the transports could be anchored near the shore. Although a heavy surf was still breaking on the beach, the debarkation of the troops began at daybreak on the 27th; several boats were swamped, and a few of our soldiers were drowned. As our fleet had been descried by the enemy six days before, the Dutch General Daendels had gained time to collect five or six thousand of infantry, with some cavalry and and artillery; and these he kept concealed among the sandhills which skirt the shore. Immediately in front of that line of beach which the British had selected for their landing, these 'Dunes' recede a little but they close in and become bolder and more steep towards Callantzoog which lay upon our right; and here the enemy held the main body of his troops, ready to plunge on our extreme flank if we should attempt to move forward towards the Helder town. To the landing of the British soldier, though it was rendered slow by the violence of the surf, no direct opposition was offered; but, as soon as six of our battalions (the brigades under Coote and Macdonald) were ashore and formed, and they began to move forward, they were assailed by a heavy fire, and a vigorous attack on their right flank. Forced to change their front, and make ahead against the superior force of the enemy on the side of Callantzoog, our troops were at the same time cramped and confused by the narrowness of their ground; the strip of beach not allowing of a front of more than one battalion in that direction. The enemy from the crests of the sand-dunes, kept up a constant and destructive fire, while he was himself sheltered by their folds from the guns of the British shipping. None of our field artillery was yet landed, and for some hours our brave infantry, though reinforced by D'Oyley's brigade of guards, had to maintain a trying struggle; but they would not give ground; and they fought so hard that they fairly wore out the enemy. Towards the evening the Dutch gave up the contest, and retreated some five or six miles to a position between the Alkmaar canal and the sea. The loss of the enemy in killed or wounded was probably small; but the disadvantages under which the invaders fought necessarily exposed the three brigades which were engaged to a serious loss of men; and a large proportion of the superior officers of the staff fell under the aim of the Dutch riflemen. Two Lieut.-Colonels and about fifty men were killed on the spot; and Lieut.-General Sir James Pulteney, five field officers, and nearly 400 others were wounded. The debarkation of troops, guns, and supplies was completed without further difficulty; and Moore's and Burrard's brigades were prepared to move forward at daybreak on the 28th. Near the Helder point stands the village of that name. It was, at the time I am speaking of, partially fortified, having heavy batteries towards the sea, commanding the channel of the Texel and the deep water within it; but on the land-side the works were imperfect and neglected. In this place the enemy kept a motley garrison (to the amount of 1,800 or 2,000 men of one sort or other) up to the evening of the 27th; but, as soon as the issue of the fight on the beach was decided, they, prepared to withdraw, spiked the guns in the batteries, and, when darkness fell, they retreated silently across the marshes and along the shores of the Zuyder Zee. At the same time the Dutch squadron, which had been lying in the Texel channel, dropped inward as far as their draught of water would allow.[1]

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[1] Douglas.

[2] *Ibid.*

6. When the Duke of Wellington, then Sir Arthur Wellesley, invaded Portugal in 1808, it was a favourite object with the ministry that the descent should be made at the mouth of the Tagus. Wellesley, decided otherwise, and made choice of a landing-place remote from Lisbon in order to avoid the danger of a debarkation in face of a large force. He effected his landing at a part deemed by the enemy of minor importance, the mouth of the Mondego River; he moved forward as soon as he could, fought a general action, gained a complete victory, and obtained possession of Lisbon.[2]

7. For great operations of this descripton any want of mortar-ships, gun-boats having small draught of water, and flat-bottomed boats for landing the troops, would be seriously felt. All the landings of troops in the face of an enemy in the course of the great war with

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[1] Sir Henry Bunbury.

[2] Napier, Vol. I.

France, at some of which General Sir Howard Douglas served, were conducted in the following manner. The troops intended for debarkation being placed in the boats out of fire of the shore, were directed by signal to form line abreast on points marked by men-of-war's boats, carrying distinguishing pennants, and containing the naval officers charged with directions of the several divisions of the flotilla, and the whole was placed under the superintendence and command of a naval officer of rank. When the line was formed, the whole moved forward by signal, rowing easily, the better to keep in line, until within the reach of musketry from the shore, when orders were given to row out. The whole of the operation, from its commencement, was covered by bomb-ships carrying 10 and 13-inch mortars, and these protected the advance of the troops by firing shells, when necessary, over the line of boats, in order to reach the beach; a like firing with increased charges, being directed against the enemy's supports in rear of the troops disputing the landing: at the same time gun-boats, drawing little water, placed on the flanks of the operation, scoured the beach upon which the troops were to land. Whilst these operations were being executed, the fleet of line-of-battle ships remained at a distance in reserve, unscathed and ready to take their part in the ulterior operation when the proper time arrived.[1]

8. 'The landing of Sir Ralph Abercromby's troops on 27th August, 1799, in North Holland," is the first instance in modern times in which an invading army has successfully effected a landing in the face of an enemy prepared to receive the attack, and having at hand field artillery and cavalry, as well as a considerable force of regular infantry. That such an operation is fraught with difficulty and danger no military man will doubt, although in the present instance, as well as in that upon the coast of Egypt in 1801, the venture was crowned with success. On both these occasions the leading division of the troops made good their footing; and were able to cover the debarkation of the rest of the forces, with the artillery, stores, and all that was required to render these armies efficient for further service.

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'In the landing of the army in North Holland,' the only boats were those of the men-of-war, ill calculated for such a service, and incapable of conveying more than 3,000 men at a time. To the officers of our navy this kind of operation was entirely new; nor did they understand the details, or feel the importance of arrangement on which military order and military success must greatly depend. Thus parts of regiments were conveyed to the shore, while parts were left behind. Battalions were intermixed, and companies had to find their proper places after they had landed, and were under the fire of the enemy. The soldiers had to wade and scramble out of the surf as well as they could, and look out for their comrades, and run to their stations in the line which was growing slowly into shape along the beach. Fortunately General Daendels chose to keep his men sheltered from the fire of the ships, and to cling to the strong post he had taken near Callantsoog. If he had rushed headlong on the flank of our first division of troops during the confusion of landing, he might have inflicted a great loss on the British, and perhaps routed these leading brigades. There was time enough to have done the work before the guards could get ashore; and it was long before the rest of Abercromby's little army were able to land. It is true that the Dutch might have lost a good many men from the fire of our ships, but it was their business to be quick in their rush; and to have mingled their superior numbers so completely with the British soldiers, that the men-of-war would not have ventured to direct their shots against the confused mass of friends and foes. But Daendels either did not see the chance, or he felt his troops unequal to such a trial. He allowed our forces to land and form without hindrance: fought a merely soldier's fight, though gallantly, in the strong post he had chosen; and was at length beaten out of it by the growing numbers and unyielding bravery of his assailants. But Abercromby had seen with alarm the confusion and danger which attended the debarkation of his 10,000 soldiers; and it was probably the impression made upon his mind on this occasion which led him to form and mature that admirable plan, by which, eighteen months afterwards, his army was landed on the shores of Aboukir in complete order of battle.[1]

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[1] Sir Howard Douglas, Part III., Sect. X.

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[1] Sir Henry Bunbury.

Landing of the British Army in Egypt.

9. When the British Army was sailing from Marmorice—'for the purpose of effecting a landing in Egypt in 1801'—Sir Ralph Abercromby had sent forward Major McKerras and Major Fletcher of the engineers, in a gun-boat, to reconnoitre the coast about the Bay of Aboukir; but it was found that these officers had ventured too closely in, and had been cut off by a superior vessel. Major McKerras had been killed, and Fletcher, with the gun-boat, taken. This loss of our two most experienced engineers, proved in the sequel to have been a very unfortunate circumstance.[1]

10. When the British army arrived in Aboukir Bay, and the weather, at first tempestuous, became calm enough to permit the troops to land, General Abercromby, who had himself reconnoitred the coast in a small vessel, gave orders for the first division, consisting of 6,000 men, to prepare for landing early on the following morning (March 8th). The preparations could not be made, however, without attracting the notice of the French, and these disposed themselves, with a numerous force of infantry, cavalry, and artillery, to prevent the invaders, if possible, from gaining the shore.[2]

11. At two in the morning of the memorable 8th March, 1801, the troops which had been chosen to strike the first blow upon the sands of Egypt, stepped into the boats. Soon after daylight, nearly all had reached the vessels which had been placed as the rallying points; but much time was consumed in disentangling the boats, and arranging them according to the line of battle of the army, so that when they touched the beach, each brigade, battalion, and company might be in its proper place. The reserve, led by Sir John Moore, Hildebrand Oakes, and Brent Spencer, formed the right; and their division of boats was under the immediate command of Captain Cochrane. Alongside the vessel on the left were marshalled the two battalions of the Guards, under General Ludlow, and the detachment belonging to Coote's brigade. It was eight o'clock, A.M., before the line of boats pulled on abreast, and in steady order, towards the shore, and till that time the

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[1] Sir Henry Bunbury.

[2] Sir Howard Douglas.

enemy had lain in silence, observing our movements; but as soon as our boats came within their reach, fifteen pieces of cannon opened upon them with round shot, though the enemy's fire was somewhat disturbed and confused by that of several English gun-boats which had been thrown in advance of our line. So closely were our soldiers packed in the boats that they could not move, and indeed the strictest orders had been given that they should sit perfectly still. The seamen pulled steadily onward, the pace of each boat being regulated by that on the extreme right. In this calm order on they came, till they were within reach of grape-shot, and then the fire became terribly severe and destructive. Some boats were sunk, and many of our men were killed or wounded, as they sat motionless and helpless under the storm of shot, to which both seamen and soldiers answered occasionally by loud hurrahs! When still nearer, the musketry of the French was poured in, quick and sharp, and our men were falling fast; but at length the boats on the right felt the ground. Out sprang our hard-tried soldiers; each man was in his place, and with Moore and Spencer at their head, the 23rd and 28th Regiments, and the four flank companies of the 40th, breasted the steep sandhill. Without firing a shot, they rushed at one burst to the summit of the ridge, driving headlong before them two battalions of the enemy, and capturing four pieces of field artillery.

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Further to the left the Coldstreams and 3rd Guards ought, according to the plan described, to have prolonged the line beyond Oakes's brigade, but the boats which carried them and the 54th Regiment, fell into confusion. These battalions were consequently hurried into the shoal-water, intermingled and disordered; and as their difficulty was observed by the enemy, the Guards were charged by the French cavalry before they could form their line. However, the attack was bravely repulsed, and General Ludlow soon got his brigade into its proper place—to the left of Oakes and the reserve. Here then was the problem, of landing 5,000 or 6,000 men in the face of an enemy prepared to meet them, satisfactorily solved. But the British had neither horsemen nor artillery on shore, and our gallant infantry were unable to follow up their victory, and inflict a heavier loss on their beaten enemy. The behaviour of our troops in this arduous service was above all praise; the patience with which they bore the storm of shot while confined to their boats; the alacrity with which they leapt ashore and instantly formed their lines; these things were unparalleled, and are even more worthy of our remembrance than the gallantry with which our troops overthrew the French on every point, when the British foot was on the shore. Still it ought not to be forgotten that the storming of the steep sandhill on the right, by Moore's brigade, was long a theme of especial admiration in the army. While the fight was going on, the boats returned to fetch the remainder of our infantry, and the whole of them were landed in the course of the afternoon, with some field pieces and a few horses. In the evening the army moved forward some two or three miles, leaving a detachment to blockade the castle of Aboukir.[1]

12. The *Fury* and the *Tartarus*, bomb-vessels, with sloops and gun-boats, were appointed to protect the landing of the force; and, though they suffered severely from the fire of the French, the troops succeeded, though with difficulty, and only in detached parties, in making good their landing. The enemy retired, and, on the 21st of the same month, the battle of Alexandria, in which Sir Ralph Abercromby fell, took place.[2]

13. In 1860, a force of English and French was landed on the Coast of China, whence they marched to Pekin and dictated terms of peace. This expedition is remarkable for the smallness of the numbers which ventured, at such a great distance from their sources of supply and succour, to land upon a hostile shore, and penetrate into the midst of the most populous empire in the world.[3]

Expedition of the Allied Armies to the Crimea.

14. In 1854, the great expedition to the Crimea was executed; and with reference to it the following facts are mentioned, in order to give an idea of its magnitude:—September 14th, 1854, an army of 58,500 men and 200 pieces of artillery was landed near Eupatoria, com-

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[1] Sir Henry Bunbury.

[2] Sir Howard Douglas, Part III, Sec. X.

[3] Jomini.

posed of 30,000 French, 21,500 English,* and 7000 Turks. They were transported from Varna to the place of landing by 389 ships, steamers, and transports. This force fought and gained the battle of the Alma (September 20th), and thence proceeded to Sebastopol. The English took possession of the harbour of Balaklava and the French of Kamiesch: these were the points to which subsequent reinforcements and supplies for the army in the Crimea were sent.[1]

15. In point of security from molestation on the part of the enemy, both of the two landing-places† were happily chosen. Both of them were on shores which allowed the near approach of the fleets, and placed the whole operation under cover of their guns. Also both landing-places were protected on the inland side, by the salt lakes, which interposed a physical obstacle in the way of any front attack by the enemy; and the access to the flank of the disembarking armies was by strips of land so narrow that they could be easily defended against any force of infantry or cavalry. It is true that the line of disembarkation of either army could have been enfiladed by artillery placed on the heights; but then those heights could be more or less searched by a fire from the ships; and the enemy had not attempted to prepare for himself any kind of defence on the high ground. The necessity of having to carry the English flotilla to a new landing-place, occasioned of course, a painful dislocation of the arrangements which had already been acted upon by the commanders of the transports; but after much delay and much less confusion than might have been expected to result from a derangement so great and so sudden, the position of the English vessels was adapted to the change.

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The plan of the English disembarkation was imitated from the one adopted by Sir Ralph Abercromby, when he made his famous descent upon the coast of Egypt; and it was based upon the principle of so ranging the transports and the boats as that the relative positions of each company, whilst it was being rowed towards the shore, should correspond with that which it would have to take when formed upon the beach.

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* Jomini would appear to have erroneously stated the numbers of the English Army: Kinglake computes them at 26,000 infantry and artillery, with more than 1000 cavalry.—F.J.S.

† Lord Raglan had changed the spot determined upon for the debarkation of the English, to about a mile to the north of "Old Fort;" the French having, during the previous night, placed the buoy to the extreme north of the selected landing ground.—F.J.S.

[1] Jomini.

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After mid-day the sea began to lose its calmness, and before sun-set the surf was strong enough to make the disembarkation difficult, and in some degree hazardous. Yet, by the time the day closed, the French had landed their 1st, 2nd, and 3rd divisions of infantry, together with eighteen guns, and the English had got on shore all their infantry divisions, and some part of their field artillery. Some few of the English regiments remained on the beach, but the rest of them had been marched up to the high grounds towards the south, and they there bivouacked.[1]

16. The result was, that under circumstances of weather which were, upon the whole favourable, and with the advantage of encountering no opposition from the enemy, an English force of some 26,000 infantry and artillerymen, with more than a 1000 mounted cavalry, and 60 guns, had been landed in the course of five September days; and although the force thus put ashore was without those vast means of land transport which would be needed for regular operations in the interior, and was obliged to rely upon the attendant fleet for the continuance of its supplies, it was nevertheless so provided as to be able to move along the coast carrying with it its first reserve of ammunition, and food enough for three days. The operation was conducted with an almost faultless skill, and (until a firm lodgment had been gained) it proceeded in the way that was thought to be the right one for landing in the face of the enemy. Though the surf was at times somewhat heavy, not a man was lost. With the French, who had no cavalry, and a scanty supply of artillery horses, the disembarkation was a comparatively easy task; and if they had so desired it the French might have been ready to march long before the English; but, knowing that their allies, having cavalry, would necessarily take a good deal of time, they were without a motive for hurrying; and during the whole of the five days which the English took for their

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[1] Kinglake, Vol. II.

disembarkation, a like work was seen going on at the French landing place. The Turks did the work of landing very well; and, indeed, they quickly showed that they had an advantage over the French and English in their more familiar acquaintance with the mode of life proper to warfare.[1]

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[1] Kinglake, Vol. II.

PART III.

MODERN INNOVATIONS.

CHAPTER I.

SECTION I.

INFLUENCE OF RAILROADS, CHAUSSÉES, CANALS, STEAM-VESSELS, ON WARFARE.

1. In European warfare, armies moving into an enemy's country have to consider chiefly—at least they have had to consider hitherto—the main roads, the *chaussées*, paved or macadamised usually in these days—of the countries that they are about to enter. But this particular warfare in America was quite an exception to any rule of that kind. The roads are so bad, (being mere country tracks, without any surface), that all communication by them for the supply of a large army must be abandoned, as the principle on which approach to the enemy is to be conducted. From the very first, the Northern Generals knew perfectly well that whenever they advanced towards Richmond—the object that was then before them—they would have to depend, not upon the roads, but upon the railroads.[1]

2. Considering the 150 miles which lay between Washington and Richmond, and the fact that in moving direct by land, M'Clellan could have but one line of railroad to supply his large army, and that that railroad would be inadequate for the purpose wanted,—being a single line of rails, it would be inadequate to bring from day to day the immense supplies that the Northern armies seemed to require,—and also having before him the fear of a dash made by the enemy on his rear, as a move which might break up the railroad and stop the supplies, he determined

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[1] (U.S. Institution). C.C.C.

to try a safer way of getting to Richmond. Having his eye on the peninsula between the York River and the James River, he was aware that at the extremity of this peninsula was a fortress in the Northern hands, Fort Monroe; and he determined to move his army by sea to that fort, and then move his army from that point by land to Richmond; or the steamers would take him up the James River until he came to the city itself. If that river was stopped, he had another way of getting there, because from the York River a short railroad of only about thirty miles in length, from the point where he could bring his steamers, led straight to Richmond. He might work his army up to that point, and there, by this short line of railroad, force his way on to Richmond.

3. It is not only on account of the supplies that great armies operate by great roads. It is also because the march of the troops and artillery becomes on bad roads so slow and uncertain that all the calculations on which a general bases a combined occupation are liable to be falsified, and the rapidity necessary for a movement intended to surprise or foil an adversary is lost, so that the design is foreseen and frustrated by the enemy. An example of the different rate at which troops move over a good and a bad road, is afforded by the campaign of Waterloo. Napoleon following Wellington, and Grouchy following Blücher; both quitted the field of Ligny on the afternoon of the 17th of June. The Emperor, marching by the great paved *chaussées* of Namur and of Brussels, assembled his army that night in the position of Waterloo, seventeen miles from Ligny. Grouchy, moving by country roads, had great difficulty in bringing his 30,000 men to Gembloux, five miles from Ligny, by ten o'clock the same night. And, to quote more modern instances, General M'Clellan says, "On the 14th of March, a reconnaissance of a large body of cavalry, with some infantry, under command of General Stoneman, was sent along the Orange and Alexandria railroad to determine the position of the enemy, and, if possible, force his rear across the Rappahannock; but the roads were in such condition that, finding it impossible to subsist his men, General Stoneman was forced to return." And, on another occasion, when the Confederates suddenly fell back from near the Potomac, just as he was commencing

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[1] (U.S. Institution). C.C.C.

to advance upon them, he speaks of their retreat as "unfortunate, in that the then almost impassable roads between our position and theirs deprived us of the opportunity for inflicting damage, usually afforded by the withdrawal of a large army in the face of a powerful adversary." While, however, impressing on the reader the absolute necessity of good roads for the sustained operations of a campaign, it is not asserted that considerable bodies of troops never move by indifferent roads. Many instances of the contrary would appear in a short course of military reading.[1]

4. * * * We shall find that the Pyrenees form a barrier between Spain and France, forbidding the supply of great armies, except by roads which lie between the extremities of the mountains and the coast on each side; that the great rivers, far from marking the lines of the great roads (which in other countries so frequently lie along the banks), flow in broken rocky channels, difficult of access; that the cultivated districts are few and small compared with the extent of the country; that the frontier of Portugal is so rigid as to admit of only two roads by which Lisbon can be reached from Madrid; and we shall then comprehend the situation of the French armies in Spain, how dependent they were on the one great road on each side of the Pyrenees, how disjointed was their front when it faced towards Portugal, how difficult it was to subsist on the resources of the country, and how perilous to draw together the scattered parts of the army, separated by ragged defiles, which were held by guerillas. We see also the importance of the fortresses of Badajos and Ciudad Rodrigo, the doors between Spain and Portugal, and Burgos, on the main line back to France. To see and provide for such circumstances, imparts vigour and unity of action to a campaign; not to see and provide for them, is to carry on war by compromises and make-shifts, and to end it in disaster.[2]

5. Since the requirements of agriculture, commerce, and industry have obliged governments to permit the construction of a great number of roads, canals, and railways between places on their frontiers, many strategical points have lost their former importance. Most of the fortresses which at one time intercepted the communications between one country and another, can now be turned with great ease. To

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[1] Hamley, Part I, Chap III. [2] *Ibid.* Part V, Chap I.

quote but one example; Charleroi, in 1815, being in possession of the only bridge then on the Sambre, along the whole French frontier as far as Namur, was an important strategical point; but now that the course of the Sambre, between Namur and Charleroi, is crossed by fourteen bridges, the latter place is of no consequence. The same remark applies to nearly all the fortresses on the north of France, and in the south of Belgium.[1]

6. The great changes which have taken place since that brief campaign was carried on in Belgium, whose issue brought to Europe forty years of peace, are by no means few or unimportant. Not only has population increased, and new food areas been brought into cultivation, but nations no longer make themselves like beleaguered cities in their exclusion from the reciprocities of trade; and the removal of vexatious restrictions on the export and import of supplies has largely increased the facilities for traffic. Roads have become more numerous, and means of conveyance more plentiful; while in the forty years' rest, during which science was undisturbed by the rude hands of armies, two great powers were developed; so that when Russia, for the second time in the century, felt the foot of foreign troops on her soil, steam was brought to bear both for land and sea transport, abridging distances and reducing time; while by the electric telegraph distances were practically annihilated.[2]

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7. Whatever advantages good roads can confer must be immensely increased when railways are employed. In using them, the first step must be the collection of the rolling stock on the required points of the different lines. To take the readiest example: if an order were issued in London in the evening, this would be accomplished on any of our lines by daybreak next morning, to an extent that would ensure the despatch of trains thenceforward without interruption. But, in fact, a continuous movement might be commenced in about six hours, with the stock collected in that interval. This preliminary measure accomplished, the following conditions attach to the conveyance of troops of all arms: —A train of from 24 to 34 carriages of all kinds—passenger carriages, cattle-trucks, horse-boxes, and break-vans—can be propelled by one engine; and a speed of from 20 to 25 miles an hour, though lower than

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[1] Brialmont, Vol. I.

[2] Saint Pauls Mag.

what is attainable, is considered most suitable to a continuous movement by lessening the risk of breaking down. An ordinary second or third-class carriage holds 32 soldiers. A horse-box holds three horses, and a cattle-truck six to eight. Taking the effective number of one of our infantry battalions at 760 men and 36 officers, and allowing three tons of baggage and four tons of camp equipage, the battalion, with its equipment, can be conveyed in one train. One train will also contain a squadron of cavalry of 120 horses, and four trains the regiment. Each artillery waggon, or gun, with its limber, occupies one truck. A battery of horse artillery, or a field battery, with its men, horses and equipment complete, requires two trains of from 31 to 33 carriages each. A battalion of infantry standing ready at the station, and properly practised, embarks in a few minutes. Cavalry require twenty-five minutes to fill the train, and artillery half an hour. If all embark at the same station, only three trains could be despatched in an hour. But by creating temporary platforms, the loading can take place simultaneously. A platform 300 feet long allows all the carriages of a train to be loaded at once; and such a platform can be made in three hours by 200 men, out of materials always at hand on railways.[1] * * * * *

8. The rapidity with which a body of troops may be moved by rail from one place to another, depends very much upon the care previously taken in the arrangements for loading and unloading at the terminal stations selected, and for marshalling the trains in proper order. For cavalry and artillery particularly, suitable platforms require to be chosen or prepared. Goods' stations will often be found advantageous.[2]

9. The conveyance of the public, or even of volunteers to reviews is no criterion, because the public embarks itself and unloads itself. The volunteers are only intelligent *infantry*, for on all occasions, when horses and guns have been forwarded by railway, they have been transported a day or two before the one of final stress. Nor must it be forgotten that the sloping platforms, covered with earth, necessary for rapid embarkation of horses and guns, are in existence at every principal station in Austria, while in England they have yet to be built. Nor is this the only difficulty. Railway drill is a common exercise in

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[1] Hamley, Part I, Chap. III. [2] Hand-Book.

foreign armies. * * * * In England the exigencies of traffic have hitherto prevented any such practice, except to a very trifling extent.[1]

10. Gunpowder should never be conveyed in the same trains with troops. Nearly 150 Austrian soldiers were killed or wounded in an accident on the Verona Railway in 1859, during which some ammunition waggons in the train exploded.[2]

11. Railways will give an astonishing rapidity to the offensive. In 1859, eight days were enough to pour a French army into Italy. Temporary railways can be constructed to connect an army with the base of operations. There are examples of this in the American War. When establishing himself before Petersburg, General Grant made a railway about 9¼ miles long (15 kilometres) in eleven days, without any preliminary survey or work having been carried out. Wooden bridges were used instead of embankments, and cuttings were avoided by going round hill sides. The railroad made by the allies at Kamiesch during the siege of Sebastopol should also be remembered. For the defence, one could obtain at any time from distant arsenals, *matériel*, the use of which, established in a good position, might be the cause of success. A railway, parallel to and in rear of an important line of defence, might be of the greatest service in transporting reserves to the points most menaced. Railways appear likely to be of greater importance for defence than offence, as it will be generally easy for a retreating army to render them useless, at any rate for some days, by destroying the line as it retires.[3]

12. A French general operating on the Rhine, some time back, was not able to count on supplies of men and *matériel* being brought together from departments so far distant from this river. Now, he is aware that in three or four days, if necessary, he will have at his disposal the garrisons and storehouses of Bayonne and Toulon. On the other hand, he will know the possibility of troops arriving from Posen, and munitions of war from Hamburgh in a very short time. In a word, as the increased range of the new arms will materially influence the movements of two armies on the point of coming into contact, so also, the great expanse common to the strategist, will extend considerably the circle of action.[4]

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[1] Times, Nov. 1, 1869. [2] Hand-Book. [3] Ambert. [4] Prevost.

13. * * Whatever increases the rapidity with which the great machines called armies are worked, and causes the fate of a war sooner to be declared, will diminish the suffering caused by the struggle to the population. The more perfect the system of supply and conveyance, the more striking the strategy, by so much the less will it be worth the while of generals to prolong their operations for the purpose of subsistence, and of governments to hold out for unreasonable terms in the hope of wearying out the foe. Schleswig might have been as many months a field for contending forces as she was days, had not their railroad system enabled the Germans to concentrate an irresistible force before the Dannewerk at the very outbreak of the war, and to terminate a delusive contest by driving the Danes at once to their intrenchments, limiting the campaign thenceforth to the dimensions of a siege.[1] * * * *

14. The first glance at the influence of railways upon strategy shows us their value for the concentration of troops from outlying districts upon a given point, and for the subsequent extension of the area of supply of the army so collected. It is beyond dispute that such concentration can be made, with far greater rapidity now than formerly; and that the greater the extent of country over which the troops are spread, the greater comparative advantage in this respect do they derive from their railways. Railways are of little use for very short distances, because the length of time occupied in preparing trains and embarking troops, especially cavalry and artillery, is great compared with that spent on the journey. But when we come to long distances the advantages are enormous. In the preparation for the Italian war of 1859, some French troops were moved by railway and steamers from Paris to Genoa in five days; one battalion went from Lille to Marseilles in forty hours; and the main line from Paris to Marseilles carried an average of 8,500 men and 500 horses a day. On one particular day 12,000 men and 650 horses were sent, the greatest number ever yet, as far as we can ascertain, transported by rail under the most favourable circumstances. We are speaking, of course, of troops moving to the seat of war with baggage and train, not of such affairs as the transport of volunteers to Brighton, when the whole energies of the railway are

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[1] Edinburgh Review.

concentrated for days on the arrangements for one day, and the troops have merely to march into the station, and file into the carriages, without any delay for packing stores, and leading horses into vans. In the same war, the Austrians moved by rail the corps of Count Clam Gallas from different parts of Austria, and the frontiers of Saxony and Bohemia,—37,500 men, 10,700 horses, 1,128 waggons, and 96 guns—to Verona in the fourteen days from the 17th to the 31st May; and it reached the position of Magenta, also by rail, just in time to bar the road to Milan from the French, who would otherwise have advanced almost unopposed. And if we look at the Danish war of 1864, we see how their railroad system enabled the Germans to concentrate an overwhelming force at the very outbreak of the campaign, brought partly from remote districts of Austria. So again her railroads enabled Prussia, between the 19th May and the 1st of June, 1866, to assemble on the frontiers of Saxony and Silesia three armies, consisting of 220,000 men, and 760 guns, armed and equipped for a campaign, and provided with the necessary transport trains, provision and ammunition columns, and field hospitals. These instances entitle us to assert, that in a country where railroads abound, the government possesses great facilities for the concentration of forces, and for the supply of large bodies of troops by rail. And as the tendency is towards the multiplication of lines of railway, these facilities will increase. Thus it can scarcely be doubted that the weeks and months of preparation and movement which were necessary in the great French wars will in future be contracted into days, and that instead of the concentration of large masses of troops being rare, as formerly, it will now be the rule of war. It is evident, also, that the value of railways for troops acting on the defensive is no less marked. Troops, spread over all the avenues by which an enemy might approach, can be concentrated with rapidity when his actual point of attack has become apparent; and beaten or threatened armies can rapidly be supplied with reinforcements. Look at the beleaguered Federal army of the Cumberland after the battle of Chicamauga, reinforced by Hooker's corps of 23,000 men, which, with all its artillery, trains, baggage, and animals, accomplished the distance from the Rapidan in Virginia, to Stevenson in Alabama, a distance of 1,192 miles, in seven days, crossing the Ohio twice in its journey. We may thus trace very distinctly the influence of railways on the preparatory movements of a campaign, and, under certain conditions, on the actions of the defenders. But when we enquire into their use for the movement of troops in an enemy's country, we find them of much less avail.[1]

15. In future, railways will play an important part in the defence of States. Whilst ordinary, and even forced marches take up a great deal of time, and considerably reduce the number of effectives owing to the sick and lame, left on the road, railways with incomparable rapidity land precisely the same numbers as they receive at starting;—ammunition and supplies of all kinds come from different parts of the country to feed the depôts of the army on service;—the arsenals are brought within reach of the reserves, and form, so to speak, the great park of all the military forces of the kingdom. In the month of May, 1849, a Russian corps of 30,000 men was moved by rail into Hungary with very great rapidity and complete success. In 1854, the Austrian army transported in like manner into the Polish provinces troops, ammunition, and provisions. About the same time, the lines from Paris to Lyons, and the Mediterranean, rendered the greatest services to the French army of the Crimea. Lastly, thanks to railways, Napoleon the Third was able in a few weeks to bring to the foot of the Alps the army of Italy with considerable *matériel*, and to execute the crowning manœuvre from Alessandria to Vercelli, which upset the combinations of Giulay, and successfully brought about the passage of the Ticino. Many operations formerly impossible, or so complicated as to become extremely dangerous, are now made easy by the employment of steam and electricity. Among these may be mentioned great disembarkations, and diversions upon points distant from the theatre of war. A clever general—by employing the rapid and regular means of warning and transport which science has recently created—will be enabled to strike blows whose suddenness and boldness will astonish his adversaries. As far back as 1854, an army of 57,500 men with 6000 horses, 21 field batteries, a siege park, ammunition, and provisions for more than a month, was conveyed at one time from Varna to Old Fort. A few hours were sufficient to disembark on the Russian soil three French divisions, two

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[1] Saint Pauls Mag.

English divisions, and 59 horsed pieces of ordnance. This operation without precedent in history has proved that in good weather it is possible to land 15,000 men an hour.[1]

16. Hereafter, naval powers prepared with the necessary fleet, will be able to transport the base of operations to any point on the enemy's coast, turn the strongest positions and baffle the best arranged combinations. Thanks to steam—the sea has become a means of communication more certain and more simple than the land, and fleets will be able to act the part of moveable bases of operations, rendering them very formidable to powers which, possessing coasts, will not have any navy sufficiently powerful, to cause their being respected. Although the employment of steam, permits the assailant to rapidly concentrate his troops and *matériel*, on the part of the frontier that he seeks to invade, and that it assures him of the means of easy and ready communication with the reserves, the depôts, and the supplies of every description in the rear; however, it should also be considered, that the quickness of the means of intelligence and of concentration is yet more advantageous to the defensive, because it dispenses with the obligation, always tedious, of disseminating forces to be in readiness to oppose at all the vulnerable points.[2]

17. * * * Railways and improved roads, have made great alterations in the necessities of a warrior, both by shortening the duration of campaigns and facilitating transport. Europe will never again see any decently-organised army, waiting many weeks for the arrival of a siege-train, for the carriage of which all available transport is required, so that from want of means of sending stores forward the troops in the front are shivering in tattered clothes, and suffering painfully from unbooted feet. Soldiers need no longer be weighed down by heavy loads upon their backs, held back from their real use—marching and fighting—to be converted into beasts of burden. A spare shirt, a change of shoes, and a pot of grease, is about all that a foot-soldier need carry with him, besides his arms, ammunition, and some food.[3]

18. The movement to a flank, of large bodies, by rail, within reach of the enemy, must be especially dangerous, because the troops follow

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[1] Brialmont, Vol. I. [2] *Ibid.* [3] Hozier, Vol. II.

each other in small isolated fractions, and are very defenceless if attacked during their transit. An insignificant detachment may therefore, with little risk to itself, interrupt the movement of a considerable force, and even inflict on it serious injury, by a well-timed and well-directed attack; whereas, the compact march of a large body by ordinary roads could only be impeded by a force proportionately great.[1]

19. The Prussians found in 1866, during their movements within their frontier, that it required a hundred trains to move a corps d'armée of 30,000 combatants, with all its train and baggage, and that it was rarely possible to move more than twelve trains a day. The Austrians are said to have succeeded in despatching fifteen trains a day. Now, traffic of this description is very useful in assembling troops from a distance behind a fortified frontier line; but in an enemy's country, with his armies disputing the territory few commanders would break up their corps into fractions and send them forward at intervals of two hours or more. And so it is only at great risk that lines of railway can be used for the movement of troops in the face of an enemy. Nevertheless, they have been so used, and with success. There is that remarkable instance of the Italian campaign of 1859, when the allied French and Sardinians held an outer line to the Austrians, but with railway communication from end to end. For five whole days the movement of their troops towards their left was carried on by detachments on the railway, and one corps was left alone on the extreme right for nearly four days, in order to confirm the Austrian commander in his infatuated notion that they were about to attack by their right. An enterprising and well-informed commander would easily have cut that corps off from the rest. At Valenza the railway runs near the river, and was unguarded. Any time during those four days, anywhere between Vercelli and Voghera, the Austrians might have cut the railway. But it was not till too late that their commander awoke to what was going on, and then the Allies were nearer than himself to the only obstacle in their path to Milan.[2]

20. As facility of transporting troops and material increases, so the power of concentrating the military resources of an empire on a distant frontier, for entrance on a foreign theatre of war, increases also, and so

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[1] Hamley, Part I., Chap. I.

[2] Saint Paul's Mag.

far his own railways are of great help to an invader. But as he cannot count for subsequent aid on the railways of districts held by the enemy, nor be certain that the course of events will not make districts where there are no railways the scenes of operations, he must be dependent on horses and vehicles for further supplies. Thus we find great preparations made by France for transport in Italy, in 1859; and the railways of the Northern States of America did not prevent a vast expenditure of transport animals in the different invasions of the south. Offensive, compared with defensive, war, must still be enormously costly. But the invader will retain and even augment, by means of his railways, the advantage of màking a sudden concentrated advance on part of an extended line of defence; and even the combined resources of telegraphs and railways could not avail to meet the first onset under circumstances geographically unfavourable to the defence; * * especially when it is considered that the defender must labour under the same doubts as before in divining whether the attack is real or a feint. But, on the other hand, the defender, if forced to retreat, will easily destroy for the time the railways in the territory which he is quitting, while preserving the full use of those which he still covers; whereas, the assailant must either content himself with the ordinary roads, or pause to repair the railways, and to reorganise the means of supply through those channels. Thus the advantage of the initiative will, in such a case, be much more transient than before, and the defender will concentrate on the threatened line with far greater comparative facility.[1]

21. In the campaign in Georgia, 1864, the aid which Sheridan derived from his railway was very important. He was operating in a country where the obstacles were numerous and the roads bad; and he was linked to his base by a single line of railway; conquered bit by bit from the enemy, who frequently broke it in retreating. "This main road," he says in his Report, "has been admirably managed, and has supplied this vast army (100,000 men), so that not a man, horse, or mule, has been for a day without food, and with abundant supplies of clothing and ammunition." Not only was the daily supply kept up, but provisions for several weeks were stored at important points of the

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[1] Hamley, Part I., Chap. I.

communications. And throughout the campaign the cavalry on both sides were extensively employed in enterprises against the railway, as the most effectual means of damaging the enemy.[1]

22. Another fact concerning railway transport, dictated by common sense, has been fully confirmed by the experience of the German War. Railways in an enemy's country have been proved to be of no use for the transport of the troops of the invader during his advance; the army acting on the defensive always breaks them up, and they cannot be repaired quickly enough to allow of troops being moved by them. But for the carriage of provisions and stores, they are invaluable. The more quickly an advancing army can lay down the rails, the more quickly can it move forward, and the more free are its motions, for the line of railway is the great artery which leading from the heart supplies the extremities of the army with means of life and action. In laying down the broken lines, the band of workmen who accompany the Prussian army, were singularly rapid and successful, but quick as they were, they were not yet quick enough, for the army transport was conducted by road for some days, even after Prague was occupied, and no enemy on the line stopped the passage of convoys. A broken bridge, even though the breach was but only a few yards wide, caused a dead stoppage in the locomotion, and the time required to shift stores from a train on side of the impediment to that on the other was very great. An engineer who would find means of constructing rapidly field bridges which would bear the weight of a railway train, would cause an advance in the art of war.[2]

23. The troops designed for the invasion of Saxony, in 1866, were the army of the Elbe and the First Army. The former was to advance from the North, the latter from the East. On the evening of the 15th June, when the Saxon Government had rejected the Prussian ultimatum, and received the declaration of war, the retreat of the Saxon army commenced, in order to gain Bohemia by way of Bodenbach, and there to unite with the Austrians. The funds from the royal treasury and the royal plate had already been packed up, and the waggons in which they had been placed accompanied the army. Means were also adopted to impede as much as possible, the advance of the Prussian

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[1] Hamley, Part I., Chap. V.

[2] Hozier, Vol. II.

troops. Saxon pioneers were set to work upon the railways which lead from the frontier upon Dresden. Of such railways there are two, that which follows the valley of the Elbe and joins the Leipsic line at Rieza, and that which from Görlitz leads by Bautzen upon the capital of Saxony. At nightfall the Saxon pioneers commenced their work, but in the dark, and under constant apprehension of being broken in upon by the Prussian advanced guards, they made but little progress. The rails were taken up, but were neither carried away, nor twisted, nor broken so as not to be again immediately available. At eleven o'clock at night, the wooden bridge which carries the railway branches to Leipsic and Chemnitz across the Elbe, near Rieza, was set on fire by means of petroleum. Its destruction was not accomplished, for only two piers were burnt; and the whole bridge was again made passable within a few days.[1]

24. The Electoral Prince of Hesse-Cassel was fortunate enough to save his army from falling into the hands of the enemy, but could not prevent the invasion of his country. The troops of Cassel, on the receipt of the Prussian declaration of war, in 1866, immediately prepared to retire from Cassel towards the Maine. On the 16th the retreat was commenced; and that day, chiefly by means of the railway, they reached the neighbourhood of Fulda. This movement could not be prevented by the Prussians, for the nearest Prussian troops were those at Wetzlar, and the railway between Cassel and Marburg had been broken up. On the 19th June, the army of Hesse-Cassel reached Hannau and secured its communications with the eighth corps of the Federal army at Frankfort.[2]

Concentration of the Austrian Army about Vienna, in 1866.

25. 'The period for the assembly of the Austrian Army about Vienna, in 1866,' is remarkable for the sudden and rapid service it required, and comprised the withdrawing of a part of the Northern Army, and bringing in the bulk of the Southern Army to concentrate round the capital. In this period, notwithstanding that the en-

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[1] Hozier, Vol. I.

[2] *Ibid.*

cumbrances * * were even increased by the pressure of the advancing enemy, and by the difficulty of approaching and loading in the small railway station at Littowitz, there were yet transported from the said place the 10th Army corps, about 19,000 men, 860 horses, 220 guns and waggons, also about 1,000 sick and wounded, and about 2,000 workmen and railway people. This transport commenced on the 9th of July, including 20 trains, and was finished in 38 hours. The bulk of the said corps was brought to Florisdorf, the Brigade Mondel to Landenburg (the latter to defend this pivot point of the railway) the sick, workmen, and railway men, partly to Brünn, partly to Vienna, and Hungary. The necessary preparations were being made for withdrawing other parts of the army when the order should come to commence the transport of the 3rd Austrian and Saxon Army corps from Olmütz to Vienna. This transport commenced on the 11th of July. By working daily 9 to 10 trains (which should however be called double trains, since each included above 200 axles, so that the rate of transport must be counted at 18 to 20 trains per day), there were transported to Vienna, the 3rd Army corps, and the larger half of the Saxons, a total of about 40,000 men, 4,100 horses, and 700 guns and waggons, in the course of three-and-a-half days. The last mentioned transport was executed at a time, when the enemy continually endangered the railway line (practically it may be said to have been under his eyes) so that there was frequent fear of seeing the trains cut off by him, and of losing some of the means of transport. The latter case actually did occur in consequence of the actions at Preran, Jobitschaus, and of an inroad of the enemy on the line Goding—Landenburg on the 15th July. In the latter case, a patrol of the enemy tore up some rails. A part of the Saxons, about 4,000 men, 150 horses, and 30 guns and waggons, could not be transported by railway. The above transport operations, were materially hindered by the difficult approach to the small railway station at Olmütz, the defective returns of the number of troops to be carried, the perpetual throng pressing to the trains, other exorbitant demands, temporary bad weather, and partial obstruction of the line by accumulation of rolling stock. * * * * * * * *

* * * The 5th Army corps, 25,000 men, 3000 horses, 567 guns and waggons, arrived from the 9th up to the 13th July, on

the Southern Tyrolese line from Verona to Bologna, crossed the Brenner by forced marches, and arrived with the van on the 14th July at Innsbruck. From there this corps was transported in 47 trains, by the North Tyrolese railway, the Bavarian line Kusshein-Rosenheim-Satzburg, by the Empress Elizabeth Western Railway, in seven days to Vienna, commencing on 15th July.[1] * * * *

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26. It would appear * * * that an invader (supposing other circumstances to be favourable) should direct his attack on a part of the theatre where railways exercise small influence, since their effect is on the whole in favour of the defender.[2]

27. 'In the Seven Weeks' War in 1866,' Prince Frederick Charles occupied Przelautsch about six on the evening of the 5th, and almost at the same time the Crown Prince entered Pardubitz. The line of the Elbe was now secured as a basis for future operations, and the Austrian railway communication between Vienna and Prague was cut. At the latter town there were said to be only four Austrian battalions, and it was expected to be evacuated by them and occupied by the Prussians within a few days. As was the case. Then, notwithstanding the fortress of Königstein in Saxony, and Josephstadt, Königgrätz, and Theresienstadt in Bohemia, the Prussian armies obtained railway communication from Pardubitz and Przelautsch by way of Prague and Reichenberg with their own country, which was of great importance to them in their further advance.[3]

28. There is no doubt, that it is of great advantage to have a fortress *à cheval* of every line of railroad, so as to render it of no service to the enemy. A railroad differs materially from a common road in this, that a break in the use of it neutralizes to a great extent its advantage. In the case of a common road intercepted by a fortress, if a corps of observation is placed so as to prevent the sallies of the garrison, or if each supply-train is guarded by a sufficient convoy, the

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[1] (Panz. $\frac{M}{P}$ Lieut.-Colonel), Foreign Tour.

[2] Hamley, Part I., Chap. I.

[3] Hozier, Vol. II.

supplies can generally be carried by cross-roads round the place without much hindrance to the traffic; but in the case of a railroad, it will not generally be possible to construct a line of rails round the fortress, the goods consequently have to be shifted into carts, carried round, and replaced in trucks on the other side, and the advantage of the railroad is to a great extent neutralized.[1] * * *

29. If the Austrians had made the most of their opportunities on the one line, 'at Elbe Teinitz' the Prussians would have been unable to use any one of the Bohemian railways, for the other lines were closed by fortresses. The direct line to Berlin was barred by Königgrätz; the guns of Theresienstadt commanded the line to Dresden; so that when the Prussians had advanced on Brünn, their only railway communication with Prussia lay through Prague, whence they had to double back eastwards, instead of going on direct to Saxony. Yet this one line of railway was of great use for the carriage of provisions and stores in rear of the army; and for this purpose, even though not for the movement of troops, an advancing army will find its enemy's lines of value.[2]

30. The possession of Reichenberg allowed Prince Frederick Charles to open railway communication with the Silesian and Saxon lines, which was of great importance in the supply of the army's necessities. The railway from Reichenberg to Zittau was almost immediately restored, for to each Prussian Army was attached a corps of pioneers, architects, and railway officials, who follow the advancing army, lay down the lines torn up by the enemy, and rapidly reorganise the working of the line for the purposes of military transport. Two other excellent institutions of the Prussian Army were quickly established, and put in working order at every halting place; they are the field telegraph and the field post office.[3]

31. * * The readiest means of destroying railways must also be considered. On this point General Sherman says:—"My own experience demonstrates the proper method to be, to march a regiment to the road, stack arms, loosen two rails opposite the right, and two opposite the left of the regiment, then to heave the whole track, rails and ties, over, breaking it all to pieces; then pile the ties in the nature of cribwork, and lay the rails over them; then by means of fence-rails

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[1] Lieut.-Col. Cooke. [2] Saint Pauls Mag. [3] Hozier, Vol. I.

make a bonfire, and when the rails are red hot, let men give the rail a twist, which cannot be straightened without machinery. Also fill up some of the cuts with heavy logs and trunks of trees and branches, and cover up and fill with dirt."[1]

SECTION II.

TELEGRAPHY, TRANSMISSION OF ORDERS, AND SIGNALLING.

Electric Telegraph.

1. The electric telegraph having become generally employed, various powers have applied it in actual warfare. France has made use of it in Africa, in the campaigns of Kabylia and on the frontier of Morocco, during the war in the East and in Italy. But the lines of telegraph in rear of the army, were not used for the purpose of communicating between different bodies of troops; their object was to retain communication with the metropolis, by the regular lines of the country. This service was entrusted to the civil department of the telegraph. Now it is desirous to extend it to the military telegraph department, and to cause it at the same time to be applied to strategical and tactical operations, under the care of the officers and men of the engineers, who are instructed in time of peace, and provided with the requisite *matériel* to operate in time of war.[2]

2. When armies are manœuvring on any other than concentrated fronts, the telegraph may exercise influence in two ways:

(1) It will enable the general to combine in one view intelligence of what is simultaneously taking place in distant parts of his front. The conclusions he will form of how far his own plan is likely to be accomplished, and of what the enemy is seeking to effect, will thus be more likely to be correct than if he received, at intervals, information of a state of affairs which may already, when he learns it, have ceased to exist, or be beyond his power to control. * * * * * *

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[1] Hamley, Part VI., Chap. VII.

[2] Prevost.

(2) It enables the general to transmit orders for simultaneous action to distant parts of his force, and to impart to the movements of an army on an extended front, the decisive and co-operative character of those which are performed under his immediate control. In the case of an army spread on an extensive front to meet an expected invasion, the advantages which railways have been said to confer on the defender will probably be increased by the conjunction of railways and telegraphs. The assailant's advantage has been explained to consist in knowing what his own point of concentration and his own line of operation will be; while the defender, doubtful of these, may be unable at once to meet the attack, or, if it is rapidly followed up, to combine his forces effectually after its direction is apparent. But the advantages which the defender will gain in breaking the railways he abandons, and using for concentration those that connect the parts of his army, will be augmented by the possession of telegraphs, which will enable him more speedily to remedy the effects of his first doubts and hesitations. *

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One of the disadvantages of a general who conducts offensive operations on an extended front, is the difficulty of imparting unity, both of time and object, to his movements; and this will in future be diminished. The telegraphic communications between the two Prussian armies invading Bohemia in 1866, was not maintained up to the battle of Königgrätz; had it been, and had the situation on both sides been fully appreciated, their joint attack might have been so timed as to obviate the risk of separate defeat which the premature onset of Prince Frederick Charles's army entailed. And in the similar cases of allied armies operating from divergent bases, like the English and Prussians in the Waterloo campaign, the chances that they will be able to combine for the blow, which has been said in those circumstances to be so decisive, will be greatly increased. Lastly, in the case of attempting to dislodge an enemy by sending a detachment round his rear, the telegraph will both diminish the risk of the movement and increase the chances of gaining its complete results. Sherman appears to have made constant use of it in his flanking operations.[1]

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[1] Hamley, Part IV., Chap. VII.

3. As regards the campaign in 1866, each of the two main armies operating in Bohemia had one unit of field telegraph equipment attached to it, a third unit was attached to the head-quarters of the King of Prussia, and a fourth was in reserve. Each unit carried 27½ English miles of wire, with a certain number of Morse recording telegraph instruments and batteries, was complete in all its details, and capable of erecting a line of telegraph as fast as the head-quarters of an army could march.

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For the Abyssinnian Campaign of 1867–68, the telegraph equipment provided was organised in two divisions, viz.: a light line to be laid as fast as the force advanced, and of which a system of visual signalling formed a part; and a reserve line, partaking more of a permanent character, to be erected at leisure. In consequence of want of transport the light line, with the exception of the visual signalling apparatus, was abandoned altogether; and for the same reason great difficulty was experienced in carrying the materials, especially the poles, required for the semi-permanent line, and its efficiency was, consequently, seriously impaired. From the above causes the progress of erection was much slower than it might have been; and, when the line was erected, considerably inconvenience and interruption to signalling was experienced principally from the breaking down of the make-shifts, which it became necessary to substitute for telegraph posts, suitable poles not being obtainable in the country.[1]

4. In all wars of this and future ages, the electric telegraph will be greatly used. It must be remembered, that a telegraph operator can with a small pocket instrument tap the wires anywhere, and learn the messages passing along them. A few such men living concealed within the enemy's territory could obtain more news than dozens of ordinary spies. Immediately before or during an action an enemy may be deceived to any extent by means of such men: messages can be sent ordering him to concentrate upon wrong points, or by giving him false information you may induce him to move as you wish. The telegraph was used in all these ways during the American war between North and South.[2]

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[1] Professional Papers, R.E.

[2] Wolseley.

Transmission of Orders.

5. * * * Conciseness, clearness, preciseness, distinctly pointing out the object to be attained, such should be the characteristic marks for service orders, rules for instruction and manœuvres, orders of the day, of general and divisional orders, as well as of adminstrative decisions, ordinances and decrees.[1]

6. Jomini has recorded the fact, that in 1807, the capture of a single messenger delayed the arrival of Bernadotte's corps two days, and left him out of the hard fought battle of Eylau. The same author, writing in a spirit favourable to Napoleon, but not desirous to screen Berthier's faults, shows that in 1809, at the passage of the Danube before Wagram, Davoust's and Oudinot's orders sent their corps to the wrong bridges, and obliged their troops to cross each other's line of march after the passage was made. Nor are these solitary instances. This historian, who served on the French staff in both campaigns, was present in a similar capacity at Bautzen in 1813. Hear he bears testimony to the fact, that the incompleteness of that great victory was directly due to the insufficiency of the orders received from Napoleon by Marshal Ney, to whom he himself was chief of the staff. In all these cases he speaks, not merely with the authority of a great military critic, but that of an observant eye witness.[2]

7. Bülow received his first orders at five a.m. on the 15th, to concentrate his troops so as to be able to get to Hannut in a day's march. This was in course of execution, when, at half-past ten a.m., he received a second order, dated at midnight, ordering a movement on Hannut. As some of his troops could not be informed of this until late in the afternoon, and as Gneisenau's letter made no mention of actual hostilities, he put off the execution of these second instructions till next day, promising to be at Hannut by noon of the 16th. But Hannut is twenty-five miles from Ligny, where his presence was sorely needed ere that hour was long passed. * * * * * * * * * * It remains a warning for future generals

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[1] Archduke. [2] Chesney, Lect. III.

in the place of Gneisenau, to put the first orders for a sudden campaign into some form not to be mistaken for an ordinary movement. A little special care in explaining to Bülow the state of the case would have been derogatory to no one writing to a general who had held a chief command himself with honour, and would have spared the error that cost the Prussians dear in the loss of 30,000 men at the hour of need.[1]

8. * * * It is probable, that in another war the communications from head-quarters to the divisions of the army will be made by signal. During the late campaign—"1866, in Germany"—orders were sent to the divisional commanders by mounted officers, who were attached to head-quarters for this special purpose. Besides these officers a certain number of picked troopers are selected from every cavalry regiment, and formed into a special corps at the beginning of a campaign, and a certain number attached to every general. These troopers form the general's escort, and act as orderlies to carry unimportant messages. When an officer is sent with an important order, one or two of these soldiers are sent with him, in case of his being attacked to act as a defence as far as possible, to yield up a horse to him in case of his own breaking down, or, in case of its being killed, to carry the order themselves to its destination, or, at any rate, to prevent its falling into the hands of the enemy if the officer is wounded and likely to be taken. During the campaign the communications between the head-quarters and divisions were kept up by means of mounted officers; but communications between the head-quarters of each army and the King were maintained by means of the field-telegraph. For this purpose a field-telegraph division is attached to the head-quarters of each army.[2] * *

Signalling.

9. Signalling consists of a code as a basis, and requires therefore only a small number of symbols to express it, and but little practice and little skill are necessary to become a signalman. Telegraphy

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[1] Chesney, Lect. III.

[2] Hozier, Vol. I.

consists of a basis of spelling—the use of a large number of symbols, and considerable practice and individual skill are therefore necessary to become a good telegraphist. Each of these parts, has its own advantages:—On land by night with good operators in good practice, a speed five or six times greater can be obtained by telegraphy than by signalling, and reference to a code is obviated altogether—but this is only available between two points, and therefore recourse must be had to signalling when it is necessary to communicate with several points at the same time. The army code of signals, has been drawn up with the view of facilitating communication between stationary military posts, between military bodies in motion, and, when at a distance from each other, also for supplying a means of communication by signal, between Her Majesty's land and sea forces, when engaged in combined operations and between coast batteries and Her Majesty's ships.[1]

10. 'An instance of the important use and results of telegraphic signals, may be mentioned.' Napoleon owes his astonishing success at Ratisbon, in 1809, to the fact of his having established a telegraphic communication between the head-quarters of the army and France. He was still at Paris, when the Austrian army crossed the Inn at Braunau with the intention of invading Bavaria, and breaking through his line of cantonments. Informed, in twenty-four hours, of what was passing at a distance of 700 miles, he threw himself into his travelling carriage, and a week later he had gained two victories under the walls of Ratisbon. Without the telegraph, the campaign would have been lost. This single fact, is sufficient to impress us with an idea of its value.[2]

SECTION III.

INFLUENCE OF RIFLED ARMS.

1. The introduction of arms of precision was the signal for numerous speculations, many of them somewhat extravagant, on the changes in warfare which would ensue. Some said all attacks would

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[1] Hand-Book.

[2] Jomini, Chap. VI., Art. 42.

be impossible; some that artillery would now be the chief arm, and infantry and cavalry mere escorts for the batteries; some that the day of cavalry was over. The problem has been further complicated since by the introduction of breech-loaders. The effect of these changes forms by many degrees the most important tactical question that can occupy the thoughts of contemporary soldiers, for it was by divining the relations between new systems and old that Frederick and Napoleon rendered Prussia and France each for a time supreme in war. To discern and provide for the new conditions under which armies will engage may, in the next European war, be worth to a people, not merely armies and treasure, but liberty and national life.[1]

2. * * * * Although the power of choosing a position in which to await battle would generally entail on an adversary the necessity of advancing for a long distance uncovered before he could attack, yet the country does not always admit of the choice of such positions. Even if it did, they might frequently be turned; and it is far more likely that manœuvring armies would come into collision in ground which would greatly lessen the advantages of the defensive. For instance, at Solferino, the level plain on the side of Guidizzolo, and the broken country about Pozzolengo, with its small hills and short undulations, were no more favourable to defence than to attack; indeed, in the hilly country, where the conformation of the ground would conceal the concentration of an assailant's column of attack, the advantage would be on his side. Again, in almost all districts there are hollow ways and dips in the ground, which may shelter troops even in what, at first, may seem to be a plain. Finally, the smoke of artillery and musketry, to which dust or fog may often be added; and the stress, moral and physical, of sustained conflict, are all of them influences which greatly diminish the effect of weapons requiring a clear range and a deliberate adjustment. Still, notwithstanding this, a great additional advantage has been conferred on the army, which, in a sheltered and commanding position, awaits the attack. The enemy's columns of march must now often form line of battle at a much greater distance than formerly, and troops advancing to attack must traverse, under the fire of marksmen, a space of several hundred yards, where the old musketry would not have reached them; while the distance still to be crossed before closing with

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[1] Hamley, Part VI., Chap. V.

the enemy, must be accomplished under an almost intolerable storm of bullets from the general line. Moreover, batteries stationed at different parts of the hostile line, quite beyond former range, would now concentrate their fire on the columns of attack.[1]

3. Increased range, celerity and accuracy of fire, have made it necessary to shelter, as much as possible, troops from the time of their entering into action, to prevent their becoming decimated. Armies also will probably avoid, more than before, fighting in an open country, or in large plains. They will seek for ground permitting a nearer approach to the enemy, concealing turning movements, screening from observation troops that are not to be brought into action at the commencement, reserves, &c. They will create obstacles for cover, where natural ones are not met with.

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Field works are then more than ever necessary; they will become more obligatory with the present arms. If properly understood and applied, they will henceforth occupy an important part in battles. It is a new aspect, which it is expedient to study.[2]

4. When improvements are made in any particular branch of the service, it seems generally to be expected that the entire system of tactics must in consequence undergo a radical change; but there are certain unalterable circumstances which hinder any one arm, no matter how perfect it may have become, from gaining such a preponderance as would prevent the effective action of the other arms. For instance, the conformation of the ground affording cover from artillery fire to cavalry and horse artillery, either when assembled together or when on the march to the point of action, the limits to human vision, which remain the same, however much the limits of the range of artillery and small arms may be altered; while artificial aids to sight are ill-adapted for practice against moving bodies, as their use must be attended with uncertainty and delay, the adjustments for long ranges and very accurate aim requiring both care and time; so that, when once within 1200 or 1500 yards of the enemy's artillery, a rapidly advancing body may be considered not much worse off now than formerly. In addition to these, many other facts will suggest themselves, all tending to prove that, in practice, the result of improvements like the present is often founded upon theoretical reasoning.[3]

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[1] Hamley, Part VI., Chap. V. [2] Prevost. [3] General Smith.

5. Happening to be in Paris near the end of 1851, a distinguished person did Jomini the honor to ask his opinion as to whether recent improvements in fire-arms would cause any great modifications in the manner of making war. Jomini replied that they would probably have an influence upon the detail of tactics, but that in great strategic operations and the grand combination of battles, victory would, now as ever, result from the application of the principles which had led to the success of great generals in all ages—of Alexander and Cæsar, as well as of Frederick and Napoleon. His illustrious interlocutor seemed to be completely of his opinion. The heroic events which occurred near Sebastopol, did not produce the slightest change in his opinion. This gigantic contest between two vast intrenched camps, occupied by entire armies and mounting 2000 guns of the largest calibre, is an event without precedent, which will have no equal in the future; for the circumstances which produced it cannot occur again. Moreover, this contest of cannon with ramparts, bearing no resemblance to regular pitched battles fought in the centre of a continent, cannot influence in any respect the great combinations of war, nor even the tactics of battles. The bloody battles of the Alma and the Inkermann, by giving evidence of the murderous effect of the new fire-arms, naturally led Jomini to investigate the changes which it might be necessary to make on this account, in the tactics for infantry.[1]

6. "Fire in action is of two kinds; the fire at will, "file-firing," and the fire by volleys: the former kind being the rule, the latter the exception. Although the fire at will is the one principally used, there are *very strong objections* to it.

The men load and fire as individuals, and generally with great rapidity, and under more or less excitement, rarely stopping to take a deliberate aim. The consequence is that very few shots take effect, and the fire is, for the greater part, wasted, as is shown by the well-established fact, that in every engagement, for every man killed or disabled, there have been from 3000 to 10,000 musket or rifle bullets fired.

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[1] Jomini.

The fire at will leads to a rapid and enormous consumption of ammunition. * * * *

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On the other hand, volley firing has often been attended with decisive results, especially when it has been reserved to the proper moment, and delivered at short range.[1] * * * *

7. The number of cartridges fired by the Prussian army in the battle of Königgrätz, barely exceeded one per man on the ground. Hardly any soldier fired so many as 90, and few more than 60. The average number of rounds fired by the Artillery of Prince Frederick Charles's army, was 42 rounds per gun; and no gun of that army fired more than 80 rounds. In the Artillery of the Guard, the 13 batteries engaged, fired 1787 rounds, being an average of 23 per gun: one battery fired 81 rounds per gun.[2]

8. The *volley fire* of the company, or of the subdivision "in the Prussian army," is much employed, notably in connexion with skirmishing; if the skirmishers are being overpowered at any point, so that a heavy fire is particularly required to be delivered from part of a line of skirmishers, a subdivision *(zug)*, or the main body of the company which has been in support, doubles up into line with the skirmishers, fire a rapid succession of volleys till the purpose is accomplished, and again retires. Such volleys are called *Kleine salve*; it is a mode of delivering fires which is worth calling attention to, it seems much relied on in Prussia, and with justice. The number of rounds now carried in the field by the Prussian soldier is 80; in the war of 1866 it was 60; with regard to the general question of preventing the too rapid firing away of cartridges, it appears that this is met in Prussia by giving the battalions the fewest possible opportunities of firing indiscriminately; independent file-firing is recognised in their drill but seems very seldom resorted to, the system of firing volleys rapidly from small bodies taking its place, these are delivered by word of command, and so the men are kept under control.[3]

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[1] Lippitt. [2] Hozier, Vol. I. [3] W. H. G.

PART IV.

TACTICS.

> Si l'officier désire connaitre la tactique du champ de bataille, c'est-à-dire la combinaison des armes entre elles, it doit avoir recours à l'étude particulière et consulter les ouvrages qui traitent de la guerre. Or, ces ouvrages le transportent sans transition, du terrain de manœuvre de la garnison, dans le domaine de la stratégie, que Napoléon nomme la *grande tactique*.
>
> LE GÉNÉRAL BARON AMBERT.

CHAPTER I.

COMBINATIONS OF THE DIFFERENT ARMS.

1. Tactics is the art of using masses at the points to which they shall have been conducted by well arranged marches; that is to say, the art of making them act at the decisive point of the field of battle.[1]

2. It is the science of the application of manœuvres. One may be a great tactician without any genius; but one does not become so without great practice. Nothing is more simple to conceive than the theory; but the practice is not without difficulties. The general must be familiar with the means foreseen and calculated by the regulations; he must at one glance know how to judge of a field, estimate distances, determine clearly the direction, appreciate the details, combine the links in the chain of circumstances. * * * *

* * Tactics has the same aim as strategy, but upon a smaller scale and a different theatre. Instead of operating over a vast country, and for whole days, the action is upon a battle-field, the extent of which is embraced by the eye, and the movements upon which are accomplished in a few hours. The basis of the combinations, the proposed aim, is always to be stronger than the enemy at an indicated point of the battle.[2]

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[1] Jomini.

[2] Marmont.

3. 'Baron Ambert informs us, that he' first began to study * exclusively, from a cavalry point of view; but after much research and reflection more than ever recognised the truth, that:—

The employment of one arm is, generally subordinate to its combination with others. He therefore took to studying the tactics of the three arms; there, however, he again came to a stop.[1]

4. Napoleon's system of war was admirably adapted to draw forth and augment the military excellence, and to strengthen the weakness of the national character. His discipline, severe, but appealing to the feelings of hope and honour, wrought the quick temperament of the French soldiers to patience under hardships and strong endurance under fire; he taught the generals to rely on their own talents, to look to the country wherein they made war for resources, and to dare everything, even with the smallest numbers, that the impetuous valour of France might have full play: hence the violence of their attacks. But he also taught them to combine all arms together, and to keep strong reserves that sudden disorders might be repaired, and the discouraged troops have time to rally and recover their pristine spirit, certain that they would then renew the battle with the same confidence as before. He thus made his troops, not invincible indeed, nature had put a bar to that in the character of the British soldier, but so terrible and sure in war that the number and greatness of their exploits surpassed those of all other nations: the Romans not excepted if regard be had to the shortness of the period, nor the Macedonians if the quality of their opponents be considered.[2]

5. The piercing *coup-d'œil* of Napoleon soon discovered that his armies accustomed to conquer in Egypt and in Italy, were few in numbers; that for battles given on German soil, they had not been sufficiently exercised, and that it was necessary to match them with the armies of Moreau and of Jourdan. In the great camp of Boulogne, he brought together and exercised for two years the army afterwards called the Grand Army. Without this real training given to 200,000 men, the admirable campaigns of 1805, 1806 and 1807, and their great results would have been impossible.[3]

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[1] Ambert. [2] Napier, Vol. VI. [3] Archduke.

6. A better account of a great battle, considered as a military study,—'than Baron Ambert's examination and illustration of the battle of Austerlitz'—cannot possibly be expected; and to such students as would fully comprehend the essential differences between the improved tactics and those derived from the school of Frederick, this book may be thoroughly commended. The army of France, under the new imperial system, proved itself as fit for combined and ready action in the shock of battle as for the rapid march and quick concentration which had already placed Napoleon's enemies at such disadvantage in the general campaign. Henceforth the tactics of the soldiers of Austerlitz become the chief model after which all great armies for more than half-a-century strove. Differences there were in detail according to national custom and habit. The Prussians refused to abandon the method which had first given their nation renown, until the system of Frederick met its final end on the heights of Jena and Auerstadt in the following year. The Russian generals have ever seemed to incline to a closer formation of their divisions than any other nation has adopted. The genius of Wellington developed an order of defensive battle (according to his own admission to Jomini) suited especially for the mixed armies he led, and founded on that marvellous solidity of the English battalions forgotten by Europe till their ancient fame revived at his touch. But an organisation by corps—columns moving independently with connecting detachments between them, changed where convenient into lines, and covered with skirmishers to shake the enemy's order and keep him out of range—cavalry less exposed than of old, yet partly used to connect the movements of the infantry divisions and guard their flanks—reserves increased to a large proportion of the whole force, and strengthened by a powerful artillery—the latter arm greatly augmented, and placed more in mass—a careful occupation of natural obstacles in front by detachments, whilst the bulk of the divisions are sheltered where possible from the enemy's guns—such are the normal rules on which orders of battle were formed down to the time of the Third Napoleon.[1]

7. History proves that, each time a period of war succeeds a long period of peace, the mode of warfare or rather tactics remains for some

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[1] Edinburgh Review.

time in a state of uncertainty. This uncertainty soon gives place to clearer and more simple principles, and upon these is finally established a new mode of warfare, which attains comparative perfection.[1]

8. Now that the improvements in artillery and small arms have doubled and trebled their effective ranges; now that in a battle, the masses are nowhere actually in perfect security; that the secret in war lies in *regulated celerity, order,* and *silence;* that the unchangeable rigidity of the earlier Prussian line of battle, has been replaced by the elasticity, mobility, and relative independence of its component parts; is it not plain that simplicity and clearness in theory, facility and rapidity in execution, are the absolute law of modern manœuvres and tactics?[2]

9. A most interesting pamphlet appeared in 1868 in Berlin, under the title of *Taktische Rückblicke auf,* 1866. As a clever and moderate criticism of the Prussian tactics, it has been translated into French by Captain Furcy-Raynaud, who calls it *Etude sur la Tactique,* and it is well worthy of careful study by all men who would judge for themselves, rather than follow popular cries. The author points out the tendency in the Prussian infantry to weaken their centre, by flowing round the flanks of an object which offers resistance; an improvised manœuvre which may succeed against very inferior or ill-armed troops, but not against such as are equal and sufficiently awake to their opportunities. Himself, a Prussian staff-officer employed during the war, the writer of *Taktische Rückblicke,* describes the attack of the first line as resembling very much "the charges of hordes of irregular cavalry," and represents the second line as hurrying up and becoming confused with the first. "Each chief communicates his impulse to whatever he finds under his hand." The reserve follows, "the original order of battle is broken, and nothing can then insure that a company fights in connexion with its own skirmishers; that the companies of the same battalion, or the battalions of the same regiment, can remain united." On the other hand, the French soldiers, full of individual intelligence, and working apparently in the loosest order, are, nevertheless, bound together by the chain of companies in battalions, battalions in brigades. At present their principal attacks at Châlons

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[1] Ambert. [2] Trochu.

and elsewhere, are made, for the most part, in a line of battalions, each formed into double columns of companies, at deploying intervals. The battalions on the flank of the brigade or division are generally at half distance, to provide more readily against cavalry attacks. Sometimes, where the ground admits of it, they attack in line with battalions in column on the flanks. Sometimes the infantry assault in echelon. Skirmishers work up to the last moment, and artillery-fire from as many different positions as possible, is concentrated upon the point to be attacked. Above all, the guns are never placed in front of the attacking infantry.[1]

10. Artillery having reached such accuracy and length of range, Generals are aware it is not only a powerful means for the attack, but also in many cases an effectual means, and nearly indispensable, for the protection of infantry. Also, when the distance and formation of the ground permit, they endeavour to arrest the head of a column, or to throw a line advancing in deployed order into disorder and confusion, by means of their artillery; keeping their infantry out of reach of the enemy's musketry. The experience of past wars and the study of recent campaigns, have convinced them of the necessity of husbanding their infantry, in order to have it in hand for the decisive moment, and of the impossibility of successful attacks with the bayonet. Since the introduction of the new arms, it is a principle never to throw columns massed or deployed on a position strongly defended, by an enemy sheltered behind walls or earthen works, without having previously, as much as possible, levelled and knocked down the defences with guns. With the present rapidity of fire, troops which advance over open ground on an enemy protected by intrenchments, are with certainty cut up, whilst the enemy is but little injured.[2]

11. * * For artillery to profit to the greatest extent, by its range and mobility, a certain amount of independence must be allowed it. This will prevent its movements being restricted, so much as formerly to those of other arms, and will make it more independent. Batteries are no longer tied down to the movements in detail of infantry; they will not, in the future, be employed in assisting directly the fire of that arm. Artillery will be a separate element, having its own aim and results in view.[3]

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[1] Times, Nov. 1st, 1869. [2] Maldan. [3] Ambert.

12. In the present day, to prevent the movements of Artillery being retarded, it is indispensable to support it by cavalry. Napoleon was a declared advocate of the association of cavalry with artillery. "Artillery," he said, "is more essential to cavalry than infantry, the former having no fire. Horse artillery has the great advantage of being able rapidly to reach the best positions for establishing batteries." Cavalry, in this case, can conceal the movement of the artillery, and will protect it in position. *A decrease* in strength of cavalry would, therefore, almost *entirely stop the progress* of artillery. The more progress artillery makes, that is to say, the more it gains in mobility and length of range, the greater need it has of cavalry.[1]

13. Jomini says, that the moral effect produced by taking troops in flank or rear by artillery, is quite incalculable. At Austerlitz, the artillery made use of oblique fire whenever the opportunity afforded itself. Batteries placed upon the road to Olmütz, took Bagration's lines in flank, and inflicted great loss upon his left wing. The Regiment of Archangel, alone, lost about 1600 men.[2]

14. As it is an essential in an offensive battle to drive the enemy from his position, and to cut him up as much as possible, the best means of accomplishing this is, to use as much material force as can be accumulated against him. It sometimes happens, however, that the direct application of main force is of doubtful utility, and better results may follow from manœuvres to outflank and turn that wing which is nearest the enemy's line of retreat. He may, when thus threatened, retire, when he would fight strongly and successfully if attacked by main force. History is full of examples of the success of such manœuvres, especially when used against generals of weak character; and although victories thus obtained are generally less decisive, and the hostile army is but little demoralised; such incomplete successes are of sufficient importance not to be neglected, and a skilful general should know how to employ the means to gain them when opportunity offers; and especially should he combine these turning movements with attacks by main force. The combination of these two methods,—that is to say, the attack in front by main force and the turning manœuvre,—will render the victory more certain than

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[1] Ambert. [2] *Ibid.*

the use of either separately; but, in all cases, too extended movements must be avoided, even in presence of a contemptible enemy. The manner of driving an enemy from his position by main force is the following: Throw his troops into confusion by a heavy and well-directed fire of artillery; increase this confusion by vigorous charges of cavalry, and follow up the advantages thus gained by pushing forward masses of infantry, well covered in front by skirmishers and flanked by cavalry. But while we may expect success to follow such an attack upon the first line, the second is still to be overcome, and, after that, the reserve; and at this period of the engagement the attacking party would usually be seriously embarrassed, did not the moral effect of the defeat of the first line often occasion the retreat of the second, and cause the general in command to lose his presence of mind In fact, the attacking troops will usually be somewhat disordered, even in victory; and it will often be very difficult to replace them by those of the second line, because they generally follow the first line at such a distance as not to come within musket range of the enemy; and it is always embarrassing to substitute one division for another in the heat of battle, at the moment when the enemy is putting forth all his strength in repelling the attack. These considerations lead to the belief that if the general and the troops of the defensive army are equally active in the performance of their duty, and preserve their presence of mind, if their flanks and line of retreat are not threatened, the advantage will usually be on their side at the second collision of the battle; but to insure that result, their second line and the cavalry must be launched against the victorious battalions of the adversary at the proper instant; for the loss of a few minutes may be irreparable, and the second line may be drawn into the confusion of the first. From the preceding facts may be deduced the following truth: "that the most difficult as well as the most certain of all the means the assailant may use to gain the victory, consists in strongly supporting the first line with the troops of the second line, and these with the reserve, and in a proper employment of masses of cavalry and batteries, to assist in striking the decisive blow at the second line of the enemy; for here is presented the greatest of all the problems of the tactics of battles." In this important crisis of battles, theory becomes an uncertain guide; for it is then unequal to the emergency, and can never compare in value with a natural talent for war, nor be a sufficient substitute for that intuitive *coup d'œil* imparted by experience in battles to a general of tried bravery and coolness. The simultaneous employment of the largest number of troops of all arms combined, except a small reserve of each, which should be always held in hand, will, therefore at the critical moment of the battle, be the problem which every skilful general will attempt to solve, and to which he should give his whole attention. This critical moment is usually when the first line of the parties is broken, and all the efforts of both contestants are put forth; on the one side to complete the victory, on the other to wrest it from the enemy. It is scarcely necessary to say that, to make this decisive blow more certain and effectual, a simultaneous attack upon the enemy's flank would be very advantageous.[1]

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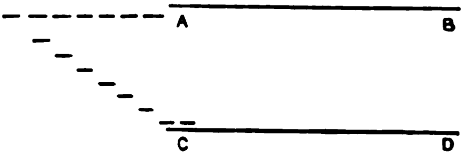
15. If one force is greatly superior to the other in precision and rapidity of movement, it may openly attempt to manœuvre round a flank, till it can form across the extremity of the hostile line. A British commander would be justified in so doing against a Native Indian army, and might even let go his hold of his own communication, secure of regaining it, if necessary, before an unwieldly foe could anticipate him. But this movement, being circuitous, is open to a great objection, if attempted against an antagonist equal in manœuvring power. For the enemy *AB*, by moving in extension of his own front, can place himself across the head of the advancing column *CD*, and so outflank it. For this reason the manœuvring will seldom be attempted. It is more common to engage the enemy on a considerable extent of his front, and amid the smoke of the guns and skirmishers, or behind the screen of hills, or woods, or hollow ways, to reinforce from the reserves, or at the expense of another part of the line, that portion of the army with which it is designed to assail the enemy's flank or front. When by its superior force it has broken through the troops in front of it, its object will be to deploy and menace the enemy's flank and rear.[2]



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[1] Jomini, Chap. IV, Art. 31.

[2] Hand-Book.

16. The difficulties of approaching certain positions being increased, it will happen in future, more frequently than in former campaigns, that generals will rather manœuvre than attack them;—preferring the hazards of losing their communications to the certain losses of the assault. Turning movements, rendered extensive by the necessity of keeping beyond the increased range of artillery, will be attempted, and opportunities for the counter-stroke of Rossbach and Salamanca will be seized on the one side and provided for on the other. Indeed, the most legitimate use of the turning movement is, not so much to attack an enemy's flank, as to draw him from a position impregnable in front, by threatening its weak side. Manœuvres, then, will in such cases precede the battle, and generals will show their skill and boldness in these rather than in headlong attacks on prepared positions.[1]

17. The principal and decisive attack forms the basis of the scheme of battle, and depends on the ascertaining of the most important point, or *key*, to the position. * * * *

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The choice of this point of attack, says General Dufour, is the great test of genius and military instinct in a general. However, the matters to be examined in order to make such choice, may be classified into three kinds; those connected with strategy, and with the higher order of combinations; those founded on tactics in their widest acceptation, and determining the general manœuvres of the battle; and those which, emanating from the very ground on which the troops have to act, may affect the movements as regards their details and execution.[2]

18. The decisive point of a battle-field will be determined by,—

(1) The features of the ground.

(2) The relations of the local features, to the ultimate strategic aim.

(3) The positions occupied by the respective forces.[3]

19. The attack of a position requires the most rapid march, and, the space to be passed over being often bristling with obstacles, the troops should always be formed in column by battalions. These little masses are easy to move; they cross without difficulty all the defiles; the rear, less exposed to the fire of the enemy than the front, pushes

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[1] Hamley, Part VI., Chap, V. [2] Lendy. [3] Jomini, Chap. III., Art. 19.

the front forward, and thus they arrive at the point to be attacked the more quickly. As a compliment to this disposition of troops, a great number of skirmishers would precede the columns, and march in a direction corresponding to the intervals of the battalions, in such a manner as to divide the fire of the enemy, and to cover the deployment if it becomes necessary, without masking the heads of columns, which may immediately commence firing. The skirmishers thus placed will find themselves supported; they have rallying points, designated and within reach, and they can never be compromised.[1]

20. In general, the most commanding ground occupied by the enemy's line will be the point of attack. For while he holds it, a success elsewhere cannot be decisive; and since the height must be carried, it is better to attack while the troops are fresh and vigorous, than when wearied by the conflict. But if the enemy's line of retreat can be seized or menaced by an attack in another quarter, it will be manifestly well to avoid the costly effort. Had the Austrians possessed no other line of retreat to the Mincio than the Guidizzolo road, the struggle for the hill of Solferino would have been needless.[2]

21. There are two ways of obliging an enemy to abandon a position, viz: by attacking and driving him from it, and by manœuvring so as to make it impossible for him to hold it. The first method should only be adopted when, in consequence of your having a superior force, or of the enemy's position being faulty, it is your object to bring on a decisive engagement. The mode of applying the second is in general to threaten the enemy's line of communication. It was by employing the second method, after the first had failed, that Massena obliged Wellington to retire from the position of Busaco.[3] * *

22. It is possible to force an enemy from the field without either menacing his flank or breaking his front. This may be effected either by pressing back his line throughout its extent, or by seizing on commanding points of the battle-field, the loss of which renders his position untenable.[4]

23. Though fixed rules are exceedingly difficult to be applied, still among the first is that of operating with a superior mass on the decisive point, because the physical force of organized numbers in arms

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[1] Marmont. [2] Hamley, Part VI., Chap. IV. [3] Mac Dougall.
[4] Hamley, Part VI., Chap. IV.

furnishes the unerring element of victory, when the moral qualities of both armies are equal. The means of bringing this force to bear in the most advantageous manner is the art of fighting; consequently courage and fortune being nearly balanced, that general who can operate with the largest mass upon the most decisive point must be successful. But for this purpose the combination must be such as to produce a unity of movements, conducting simultaneously to the same object; and the masses so produced must act with energy against the enemy, for mere superiority on the given point without action would be useless; as was signally exemplified at Fontenoy, where less than half of an inferior army broke through the hostile position, and then halted nearly four hours, waiting the reorganization of the enemy's line, in order to be defeated. The following maxims are of general application :—

(1) No favourable opportunity should be postponed to the morrow.

(2) No battle should be given but for an important object, unless the circumstances render one unavoidable.

(3) No battle undecided at night-fall should be considered ended until at least one more great concentrated effort shall have been made to convert it into a complete victory before total darkness produces the cessation of action. Napoleon, on more than one occasion, obtained his victories by such an unexpected effort, and particularly at Ligny owed his momentary success to this measure.

(4) After a victory, the enemy should not be allowed to recover: fatigue must be disregarded, and the pursuit made incessant, for the enemy is surely as much exhausted as the conqueror ; if he can flee, the other must be able to pursue; the troops should be concentrated as much as possible towards the close of a successful action, not only to complete the work satisfactorily, but to repel those last and desperate efforts which have more than once turned the fortune of the day.[1]

24. As in lines of operations, so on fields of battle, it is necessary to avoid, 1st—Forming isolated divisions; 2nd—Ordering extended movements, which deprive the army of a part of its strength, and enable the enemy either to ruin the main body or the detachment;

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[1] (Aide-Mémoire), C.H.S.

3rd—Positions with too great an extent of front; 4th—Suffering obstacles, rivers, ravines, &c., to separate the wings or impassable rocks to intervene between the columns, exposing them to be separately defeated.[1]

Reserves.

25. Tactical talent consists in causing the unexpected arrival, upon the most accessible and the most important positions, of means which destroy the equilibrium, and give the victory; to execute, in a word, with promptness, movements which disconcert the enemy, and for which he is entirely unprepared. To this effect it is essential to employ reserves appropriately and with judgment; this displays the true genius for war. We should carefully avoid using them too soon or too late; if too soon, we employ our means uselessly, and deprive ourselves of them at the moment when they will be most necessary; if too late, we either allow the victory to be incomplete, or the reverse to increase and become irreparable.[2]

26. There are some battles where success depends upon the first shock; in others the opportune moment for striking the decisive blow does not occur till near the close of the day; this depends upon the respective positions of the contending parties. Thus, at Waterloo, the decisive moment for Wellington was at the approach of Blucher; at Marengo the decisive moment for me was the return of Dessaix from Rivalta; and for the opposite parties in these two battles it was early in the day. If we apply this general principle to the battle of Borodino, is is not difficult to judge of it understandingly. We ought to have struck the decisive blow in the first attack, without allowing Bagaworth and Ostermann time to reinforce the threatened point. In reply to the reproach which has sometimes been made against me for not having sent to Ney the Young Guard at eleven o'clock, it may be said that although it would have been better to do so, nevertheless, under the circumstances, my refusal cannot justly be regarded as a fault; for at that time the enemy still exhibited a firm attitude, and all our

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[1] (Aide-Memoire), C. H. S.

[2] Marmont.

battles with the Russians had been long, obstinate, and bloody; I thought they had more fresh troops coming from their right, and was ignorant that their guards were all engaged; it would have been improper in me to have engaged my final reserve before they did theirs. It is not at a distance of 800 leagues from the base of operations, that one can venture upon such a manœuvre. It was for want of a good reserve that Charles XII was forced to fly alone into Turkey, after the battle of Pultowa.[1]

27. 'At Salamanca' the crisis of the battle had arrived, and the victory was for the general who had the strongest reserves in hand. Wellington, who was seen that day at every point of the field exactly when his presence was most required, immediately brought up from the second line, the sixth division, and its charge was rough, strong, and and successful. Nevertheless, the struggle was no slight one. The southern ridge was regained; the reserve of Boyer's dragoons coming on at a canter, were met and broken by the fire of Hulse's noble brigade. Then the changing current of the fight once more set for the British.[2]

28. General McClellan at the battle of Antietam, beside that of making his attacks so disconnectedly, that they afforded no help to each other, * kept 15,000 men in strict reserve to the very end of the battle, a force which, properly employed, might have been used to obtain some decisive advantage. For any practical effect produced on the 17th or the next day, Porter's corps might as well have been at Washington. There is no example of any great tactician thus making useless his superiority of force of his own choice, except the single one of Napoleon refusing to employ his guard to decide the desperate struggle at Borodino; and although the great emperor had the strongest possible reason for thus reserving his best troops, in the enormous distance from his depôts which he arrived at, and the consequent impossibility of replacing them; yet he has been more condemned than admired for this striking deviation from his usual practice, which rendered his victory so indecisive, and ultimately so useless. But McClellan was in the very reverse of such a position, and could have had no similar reason; for his reinforcements were near, and those of his opponent

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[1] Life of Napoleon. [2] Napier, Vol. V.

exhausted. The only excuse which can be made for his timidity as to the use of his reserve, must lie in the ignorance he laboured under as to the great numerical inferiority of Lee.[1] * * *

Taking the initiative.

29. As to the relative advantages and disadvantages attendant upon taking the initiative in strategy and in tactics, Jomini remarks, that * "especially in strategy, the army taking the initiative, has the great advantage of bringing up its troops and striking a blow where it may deem best; whilst the army which acts upon the defensive and awaits an attack, is anticipated in every direction, is often taken unawares, and is always obliged to regulate its manœuvres by those of the enemy." Also, "* that in tactics, these advantages are not so marked, because in this case the operations occupy a smaller extent of ground, and the party taking the initiative cannot conceal his movements from the enemy, who, instantly observing, may at once counteract them by the aid of a good reserve. Moreover; the party advancing upon the enemy, has against him all the disadvantages arising from accidents of ground that he must pass before reaching the hostile line; and, however flat a country it may be, there are always inequalities of the surface, such as small ravines, thickets, hedges, farm houses, villages, &c., which must either be taken possession of or be passed by. To these natural obstacles may also be added the enemy's batteries to be carried, and the disorder which always prevails, to a greater or less extent, in a body of men exposed to a continued fire of musketry or artillery. Viewing the matter in the light of these facts, all must agree that in tactical operations the advantages resulting from taking the initiative are balanced by the disadvantages."[2]

30. When an army is posted behind natural or artificial obstacles, ought it to await the enemy at the moment of a combat; or is it better to go out and give battle? This question has at all times been the cause of much controversy amongst military writers. It would appear that no fixed rule can be made in the matter, and that the plan to be

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[1] Campaigns in Virginia.

[2] Jomini, Chap. IV, Art. 30.

followed depends upon a number of circumstances, impossible to foresee. In generals the approved ideas in modern tactics are, that the offensive be vigorously taken, at the moment of the enemy advancing to the attack, and for that reason the organization is such as to permit of an advance with the greatest possible celerity. When, on account of the numbers or description of the troops, there is an inferiority to the adversary, it is better to remain on the defensive.[1] * * *

31. A natural obstacle, by impeding the advance of an attacking force, may so greatly increase the effects of the fire by which it is opposed, as to render a charge impracticable, though neither the magnitude of the obstacle nor the intensity of the fire might have been singly sufficient to stop the onset of resolute men.[2]

32. Each arm, after having been accessory, must in its turn become a principal element, because there are circumstances in which a particular effect is to be produced. Thus cavalry reserves are indispensable, whether for engaging masses of cavalry, or to precipitate themselves upon ill supported infantry corps, or to cover infantry when in disorder, or to carry batteries, &c. This cavalry should be supported and sustained by an artillery force belonging to and associated with it, according to circumstances, in order to obtain the desired results. The cavalry is here the principal arm, and the artillery accessory. But the turn of the latter also comes during the battle; the artillery reserve, employed to produce a great effect, at a given moment and upon a designated point, becomes suddenly the principal arm; it crushes the enemy with its fire. Then the infantry advance, which complete the disorder, and finally the cavalry, charging upon them, finish their destruction and assures the victory.[3]

33. On the defensive, it seems also advisable to have the artillery not in reserve distributed at equal intervals in batteries along the whole line, since it is important to repel the enemy at all points. This must not, however, be regarded as an invariable rule; for the character of the position, and the designs of the enemy may oblige the mass of the

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[1] Prevost. [2] (Aide-Mémoire) Robertson. [3] Marmont.

artillery to move to a wing or to the centre. In the offensive, it is equally advantageous to concentrate a very powerful artillery-fire upon a single point where it is desired to make a decisive stroke, with a view of shattering the enemy's line to such a degree that he will be unable to withstand an attack upon which the fate of the battle is to turn.[1]

34. When on the defensive, the guns will direct their fire on the attacking columns; but when supporting an attack of infantry, though a part of them will properly be directed on the enemy's infantry, yet a proportion should also, by firing on the enemy's artillery, seek to diminish its effect on the advancing columns. Batteries accompanying the advance of infantry may, as in the case of cavalry, though with due regard to the slower pace, supply the want of fire, and diminish the effect of the enemy's rifles and artillery.[2]

35. The artillery, in order to fire, must halt and come into action. Therefore, when acting in support, during the advance or retreat of cavalry, the artillery must move at a faster rate than the cavalry, and thus gain time to take up consecutive positions in advance, to come into action, and to deliver their fire before they become masked by the continued advance of the cavalry; or, to be in action and ready to open fire, as they become unmasked by the continued retreat of the cavalry.[3]

36. The artillery should always have a sufficiently strong escort attached to defend them, and to secure them against any sudden attack by small bodies of the enemy. * * * * * *
So long as the artillery is properly escorted, and occupies positions which are considerably nearer to our own force than to the enemy, there can be no danger, as we can move as fast to the support as the enemy can to the attack, and we have less ground to go over.[4]

37. When infantry threatens artillery, the latter should continue its fire to the last moment, being careful not to commence firing too soon. The cannoneers can always be sheltered from an infantry attack, if the battery is properly supported. This is a case, for the co-operation of the three arms; for, if the enemy's infantry is thrown into confusion by the artillery, a combined attack by cavalry and infantry will cause its destruction.[5]

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[1] Jomini, Chap. VII., Art. 43.
[2] Hamley, Part VI., Chap. II.
[3] General Smith.
[4] *Ibid.*
[5] Jomini, Chap. VII., Art. 46.

38. Oukouneff, and most tacticians recommend that infantry skirmishers should always be employed against artillery, prior to attacking it with cavalry. By this means many men and horses will be killed and the battery thrown in disorder, This principle ought now more than ever to be observed. Skirmishers are able to approach within 600 metres of the guns, without fear of grape-shot, and their fire at that distance, would be comparatively very effective.[1]

39. It is far easier to overcome the several arms, when separated, than when they afford each other mutual protection, Lannes applied this principle, with success, when he stopped all communication between the infantry of Bagration and Lichtenstein's cavalry. It is, by a skilful disposition, to prevent the enemy acting tactically, and combining his efforts.[2]

40. In estimating the effect of a charge on the combinations of the three arms, and of the circumstances in which a charge is applicable, it is necessary to consider the obstacles by which the charging body may be opposed, and the results which it is capable of obtaining. The obstacles by which a charge may be obstructed are:—local impediments, whether artificial or natural, such as fortified posts, intrenchments, abattis, inundations, enclosures, rivers, thickets, swampy or rugged ground. These impediments may either be such as to render a charge altogether impossible, or they may be such as merely to increase the risk and difficulty attending its execution.[3]

Echelons.

41. The distance between echelons should be such that they can efficaciously flank one another with musketry fire. This distance should be within easy range of the infantry arm. The rear echelons should obtain as much shelter as possible, afforded by the nature of the ground from the enemies fire, and also conceal their own movements.[4]

42. The attack in echelon, an improvement on the oblique formation is worthy of the attention of tacticians. The echelon formation facilitates marching and manœuvring, it allows each unit to engage independently,

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[1] Ambert. [2] *Ibid.* [3] (Aide-Mémoire), Robertson. [4] Ambert.

and the whole line can afterwards be readily brought into action. It moreover offers the advantage of not compromising the whole army. In case, the first echelon is obliged to retreat, the enemy can at best only menace and break through the flank of the second, more particularly if the flanks are protected by artillery and cavalry.[1]

Offensive and Defensive Battles.

43. For defensive battles, the conditions of success are:—the choice of a good position, the flanks of which are well posted, and the rear free and protected; obstacles which render the enemy's approach more difficult in front; finally, brave, disciplined troops, commanded by an energetic and determined man. Offensive battles require, more than all else, good strategic combinations and skilful tactics; troops easily handled, good marchers, nimble and intelligent, with a decided dash about them. The soldier must be ambitious of success, as though it belonged to him personally, and he must associate himself with the idea of it in advance.[2]

44. At what hour should "offensive" battles be fought? This is a question worthy of examination, as it is of great importance. When we have the choice, the hours should be varied according to circumstances. Have we a decided superiority, which authorizes a firm confidence in victory? The attack should be made early in the morning, that we may profit by the successes obtained. Every true soldier will recall the chagrin he has felt in the midst of success, on seeing the arrival of night, and the impatience with which it is expected in case of reverse. Again, the attack should be made as soon as possible, when we have all our troops in hand, while the enemy has not yet assembled his own. * * * *

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But when forces nearly equal render victory uncertain, it is better to attack towards the middle of the day; the consequence of a reverse are less formidable, and a general must above all think of the preservation of his army. The destruction of the enemy holds only a secondary place in the order of duties and interests. Moreover, if the question remain undecided, we have the whole night to prepare a new attack and other combinations. Besides, the troops are well rested; they have been able to breakfast before the combat; they are in conditions of force and energy. On the contrary, the defensive army, preoccupied and agitated, cannot give itself up to such complete repose, and often sees its *morale* injured in proportion as the moment of action approaches.[1]

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[1] Ambert. [2] Marmont.

45. Marmont thus sums up, "Defensive battles belong more to war as a profession; offensive battles, well planned and well conducted, are the *appanage* of genius. Such was the true character of the wars of Frederick the Great, for the great defensive war of seven years almost always had an offensive character; and, in this respect, his campaigns strongly resemble many campaigns of Napoleon, with the simple differences of the period and the state of military science. In attentively reading the narrative of the action of great generals, we may recognise the kind of troops which they have commanded, by the manner in which they have employed them. We may even recognise their own character; for it must be admitted that those who have excelled in a particular kind of war, had a special genius for it. Natural instinct, if not our best guide, at least powerfully contributes to develop our faculties."

Condition of the Contending Armies at Waterloo, in the morning, and state of the ground.

46. The early daylight "on the 18th June, 1815," showed Napoleon the army of his adversary motionless in its position. The English had passed the rainy night in much discomfort; but his own soldiers, almost destitute of firewood, had suffered still more from the down-pour of rain, which only ceased at four a.m. On the report of his artillery officers that the ground would require some hours before the guns could move on the muddy fields, Napoleon delayed the preparations for the battle, though his troops were put under arms at an early hour. He expressed his satisfaction at the firm countenance of the English,

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[1] Marmont.

discussed his intended manœuvres, and counted up confidently his chances of success. He had in his whole air and bearing the manner of one who scented a coming triumph, and felt no touch of fear of such an unexpected disaster as might follow the arrival of a fresh army on his flank. No allusion is mentioned, even in his own narratives, as made by him that morning, to any possible aid from Grouchy, nor any sign that he thought the Prussians near. After receiving a report from his chief engineer, General Haxo, that no signs of intrenchments were to be seen in the enemy's position, he dictated his orders for the battle, and proceeded soon after eight a.m., to marshal his troops in array in three grand lines, in the most deliberate manner, upon the slope opposite the position of Wellington.[1] * * * *

47. * * Napoleon, it is alleged, lost precious hours at the beginning of the day, which could never afterwards be recovered. Believing the Prussians to be quite disorganized, he waited on the 18th, till the ground should become hard, and instead of beginning the battle, as he ought to have done at six in the morning, he made his first offensive movement, between ten and eleven.[2]

48. * * Napoleon's tactical performance on this great day, was not only inferior to that of his antagonist, but beneath his own previous reputation. To sum it up in the words of a writer (Brialmont) whose spirit often inclines strongly to the side of Napoleon, even where he writes the praises of his opponent, 'He made the first attack against La Haye Sainte with over-deep masses; he engaged, or allowed to be engaged, his cavalry too soon; finally, he showed some hesitation when, at six o'clock, he had the proof that a general effort on the centre might succeed. Nor was this effort made with enough troops, or sufficient unity. *In general, all the attacks made during this day had the defect of being badly supported.*' * * * *

* * Of Napoleon, on the 18th of June, it stands clearly proved that his management of the attacks was so imperfect that his advocates would fain charge the details to his lieutenants; that he neglected the only hope of arresting Blucher at the passage of the Lasne; and that he prolonged the battle uselessly until safe retreat was impossible. To sum up shortly: had it been any other general that

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[1] Chesney, Lecture VI.

[2] Gleig.

acted thus on that eventful day, it would long ago have been plainly said that his tactics in the battle were as defective as the strategy which placed him in it at such fearful odds.[1]

Battle of Königgrätz: direction from which the attack was expected.

49. By the general tenor of an order, (issued by Benedek) it appears that the Feldzeugmeister fully expected to be attacked on his left; for much the same reason as Wellington, at Waterloo, fully expected to be assailed on his right. The part of the order which relates to the fourth and second corps, shows that he contemplated the possibility of an attack on his right; but not from a very large force. Probably the reports of the spies induced him to believe that the first corps and the Guards at least, of the army of the Crown Prince, had joined Prince Frederick Charles, and that only two corps, or 60,000 men, were at the most on the Elbe. He knew that the two main bodies of these latter two corps must defile over the river, and march fifteen miles over very bad roads, and an extremely difficult country, before they could feel his right. In the meantime he might have disposed of the adversaries in his front. The conduct of the Austrian general during the action, seems also to confirm this. Had he known that at ten o'clock Prince Frederick Charles sent only four divisions across the Bistritz, he would hardly have failed to bear down upon them with greatly superior numbers, and crush them at once, before the arrival of their assistants.[2] * * *

50. How the Prussian Guards were allowed to get into Chlum, appears inexplicable. From the top of Chlum church-tower, the whole country can be clearly seen, as far as the top of the high bank of the Elbe. A staff-officer posted there, even through the mist, which was not so heavy as is generally supposed, could have easily seen any movements of troops as far as Choteborek. A person near Sadowa could see quite distinctly Herwarth's attack at Hradek; and, except during occasional squalls, there was no limit to the view over the surrounding country except where the configuration of the ground or the heavy smoke

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[1] Chesney, Lecture VI.

[2] Hozier, Vol. I.

overcame the sight. From the top of Chlum church there was a clear view over all the neighbouring hills, and the top of the spire generally stood out clear over the heavy curtain of hanging smoke which, above the heads of the combatants, fringed the side of the Lipa hill, from Benatek to Nechanitz. So little apprehensive, however, was Benedek of an attack on his right, that he stationed no officer in the tower; and himself took up a position above Lipa, where any view towards the north was entirely shut out by the hill and houses of Chlum. No report appears to have reached him of the advance of the Guards, yet they were engaged at Horenowes, and passed through Maslowed. From that village, without opposition, they marched along the rear of the Austrian line, apparently unobserved, until they flung themselves into Chlum and Rosberitz. It seems that the fourth corps to whom the defence of the ground between Maslowed and Nedelitz was entrusted, seeing their comrades heavily engaged with Franzecky in the Maslowed wood, turned to their aid, and pressing forwards towards Benatek quitted their proper ground. A short time afterwards the second Austrian corps was defeated by the Prussian eleventh division, and retreated towards its bridge at Lochenitz. The advance of the fourth corps, and the retreat of the second, left a clear gap in the Austrian line, through which the Prussian Guards marched unmolested, and without a shot seized the key of the position. Once installed, they could not be ejected, and the battle was practically lost to the Austrians.[1]

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[1] Hosier, Vol. I.

THE THREE ARMS.

CHAPTER II.

Section I.

CAVALRY.

La cavalerie est nécessaire à la guerre, pour éclairer, et donner des nouvelles de l'ennemi. Tel est le rôle de la cavalerie dite légère ; elle est la vue et l'ouïe de l'armée ; sans elle, un général est à chaque moment entouré de périls. La cavalerie est encore utile pour combattre et pour profiter de la victoire. Sans la cavalerie, une bataille gagnée ne donne pas de résultat décisif.

Le Maréchal Marmont.

1. In modern Europe, cavalry first rose into importance, when the nations of Germany overran the Continent, and felt the necessity of having numerous bodies of horse with their invading armies; a necessity which had not been made apparent whilst they remained in their own country. The period of our Great Civil War witnessed the introduction of many changes besides those which were merely of a political nature. It was then that our horse first began really to distinguish themselves, and to stand forward as the gainers or deciders of victory. The English cavalry under Cromwell and his fiery adversary, Prince Rupert, claim especial notice; for from the numerous cavalry engagements of that period many good and useful lessons may yet be gleaned by the cavalry soldier.[1]

2. For ages the finest cavalry seen in Europe, was indisputably that of the Turks. In great part, both men and horses were brought over from the Asiatic provinces of the empire, and the rest of the men and horses were of Asiatic descent. The horses though not large (seldom much exceeding 14 hands), were nimble, spirited, and yet docile, and so trained and bitted, as to be perfectly under control: the hollow

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[1] Nolan.

saddle was rather heavy, but all the rest of the appointments were light: the soldier rode in the broad short stirrup to which he and his ancestors had always been accustomed, and on which they had a firm and (to them) natural seat, out of which it was most difficult to throw him; his scimitar was light and sharp, and, in addition to it, he generally carried in his girdle that shorter slightly curved weapon called the yataghan, with an edge like that of a razor. Some of the Spahis used long lances or spears, but these were always thrown aside, as useless, in the *mêlée* of battle. Their tactics were few and simple.[1]

3. As a general rule, it may be stated, that an army in an open country should contain cavalry to the amount of one-sixth its whole strength; in mountainous countries one-tenth will suffice.[2]

4. "Cavalry reserves," observes Marmont, "important as they are, should not exceed a designated force upon a given point; beyond certain limits, the most skilful general cannot handle them; and, besides, it is difficult to subsist a great number of horses together. I would limit the force to 6,000 horse, the management of which is practicable; with this number success ought to attend any reasonable undertaking with cavalry upon the field of battle. Napoleon, in his last campaigns, organized bodies of cavalry composed of three divisions, numbering at least 12,000 horse. This idea was monstrous, and without useful application on a battle-field, it was the cause of immense losses without fighting, these great corps having served no other purpose than to present an extraordinary spectacle, designed to astonish the eye."

5. As cavalry has been stationary, while other arms were increasing in efficiency, disputants have been found even before the era of breech-loaders, to question whether it should in future, enter so largely as formerly into the composition of armies. The achievements of French or Austrian squadrons in the Italian campaign were not calculated to show how it could be used decisively; and in the American war the cavalry on either side was confessedly unfit to take its place in the line of battle; and both Confederate and Federal officers believe that the arm should be restricted altogether to the duties of reconnaissances, advanced guards, and escorts, performing rapid enterprises as mounted infantry. This opinion is not shared by the continental powers, who

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[1] Nolan. [2] Jomini, Chap. VII., Art. 44.

hold the opposite doctrine, that, though the relations of the three arms have been changed, and new combinations are necessary, yet their equilibrium has not been seriously disturbed, and proofs of this may be adduced from the war of 1866. We have only to imagine two armies approaching each other—the one possessing a cavalry which, after covering its march, would retire beyond reach of the engagement; the other, accompanied in the battle by great masses of carefully-trained squadrons—to perceive the importance of solving this question.[1]

6. The special difficulties that cavalry has encountered in the late wars, especially in the Italian campaign of 1859,—the *rôle* traditionally assigned to it—the successive improvements which have made the fire of infantry so formidable, have given birth to an opinion—timidly expressed as yet, but which seems to be gaining ground. It tends to show that the action of cavalry is at present powerless,—almost impossible, and that the time has arrived for considerably reducing the proportion it bears to other arms, in a mixed force. This is an error which it is very important to contradict. Cavalry in war is *par excellence* the instrument of celerity,—the means of producing not great *shocks*, as is too generally believed, but grand moral effects which paralyse and disorganize, and whose results under stated circumstances are incalculable. The general public believes that cavalry always begins by charging the masses opposed to it,—penetrating and dispersing them by the breast-piece of the horse, and by the sword and lance. It also believes that in the charges of infantry against infantry, the opponents pierce each other with bayonets in a Homeric struggle, where blood flows in torrents. In both cases, on the contrary, duels with sword or bayonet are governed entirely by circumstances purely accidental, and generally isolated. "C'est un effet moral, non un effet de choc generalisé, qui décide de la crise."[2]

7. One of the conditions under which artillery must exert its increased power of manœuvring, is association with cavalry. On the efficacy of the cavalry, therefore, must depend, in great degree, the efficacy of the artillery. But when associated thus, cavalry is no longer helpless against fire—the combined force can both attack and defend itself. Such companionship, then, is more than ever important.[3]

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[1] Hamley, Part VI., Chap. V. [2] Trochu. [3] Hamley, Part VI., Chap. V.

8. Marmont thus expresses himself, as to the qualities necessary for a general of cavalry:—"To command cavalry, where large masses are concerned, superior qualities and special merits are necessary. There is nothing so rare as a man who knows how to wield, conduct and use them appropriately. In the French armies, we can count but three in twenty years of war;—Kellermann (junior), Montbrun, and La Salle. The qualities necessary for a general of cavalry are of so varied a nature, and are so rarely combined in the same person, that they seem almost to exclude each other. The first thing to be mentioned is a sure and prompt *coup d'œil*, a rapid and energetic decision, which does not, however, exclude prudence; for an error made and a blunder committed in the beginning of a movement, are irreparable in consequence of the small amount of time required to execute it.[*] It is otherwise with infantry, whose march is always slow, compared with the movements of a general and his aides-de-camp. The cavalry general, should study to place his troops under shelter from the fire of the enemy, and at the same time to keep them in position; but to lavish them when the moment of attack has arrived."

9. When cavalry is required to charge over unknown ground, it should be preceded by a few men thrown out to the front as skirmishers, in order to *scout the ground* to be passed over. The neglect of this precaution, has sometimes led to great disaster. At Talavera, two cavalry regiments, the 1st German Hussars and the 23rd Light Dragoons, were ordered to charge the head of some French infantry columns. When near the top of their speed, they came suddenly upon a deep ravine, with steep sides.[†] Colonel Arentschild, commanding the Hussars, who was in front, at once reined up, and halted his regiment, saying: "I vill not kill my young mensch!" But the other regiment, commanded by Colonel Seymour, which was on its left, not seeing the obstacles in time, plunged down it, men and horses rolling over on each other in frightful confusion. Of the survivors who arrived on the other side by twos and threes, many were killed or taken; and only one-half of the regiment ever returned. So, at the battle of Courtrai, in 1302,

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[*] Baron Ambert considers, 'All these qualities, were combined in Seydlitz.' F.J.S.

[†] Something similar occurred to the 14th Light Dragoons, under Lord Gough, at the action at Ramnuggur in the Punjab, in 1848; when reconnoitring the position of the Seikh army. F.J.S.

from the French cavalry omitting to scout the ground they charged over, the Flemings won a great victory. * * * *
The Flemings were drawn up behind a canal, flowing between high banks and hidden from view The French rushing on at full gallop, all the leading ranks were plunged into the canal. * * * *
So, at the battle of Leipzic, in 1813, Murat, in his great cavalry charge on the allied centre, had captured twenty-six guns, and was carrying all before him, when he pushed on to the village of Gulden Gossa, where the ground had not been reconnoitred, and could not be distinctly seen from a distance. Here the French found their career suddenly checked by a great hollow, full of buildings, pools of water, and clusters of trees; while the allied infantry, from behind the various covers, afforded by the ground, opened upon them a destructive fire. Being then suddenly charged in flank by the Russian cavalry, they were driven back with heavy loss; the Allies recapturing twenty of the twenty-six guns they had lost.[1]

10. The principles put in practice at Zorndorf by Seydlitz, may be considered as the basis of those which guided cavalry manœuvres under the Empire. Even at the present day, they assist us in our researches. Seydlitz caused the ground between himself and the enemy, to be reconnoitred with the greatest care. His charges, consequently, were never impeded by unexpected obstacles, as at Waterloo.[2]

General Warnery says, "The principal care of a cavalry general should be, after having assured the safety of his own flanks, to endeavour to reach those of the enemy which he should do with great rapidity, before his adversary has time to prepare for, or even to perceive, him." Seydlitz neglected the first part of this rule, for he attacked an enemy slow at manœuvring but of great strength, against whom it was necessary to act in masses. He attended to the second part, however, very *a-propos* and with much success. His cavalry did not fail on each occasion to take oblique or perpendicular order, according to the line of battle of the enemy.[3]

11. Of all arms, cavalry is the most difficult to handle in the field. It cannot engage an enemy, except where the ground is favourable. It is always dependent on the condition of its horses. It is easily

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[1] Lippitt. [2] Ambert. [3] *Ibid.*

dispersed, and it easily gets out of hand. However brave and intrinsically good, it is of no use without good officers. The qualities requisite in a cavalry leader are, a good eye for country, and a quick one for the enemy's movements, great energy, courageous decision, and rapid execution.[1]

12. The fighting unit is called a squadron; the rule, for determining its strength is, to unite the greatest mobility with the maintenance of order. A squadron having too great a front would be easily thrown into disorder by the slightest obstacle, and every troop in disorder is half conquered.[2]

13. Speed is more than weight: in proportion as you increase weight you decrease speed, and take from your cavalry that impetus which ought to be its principal element. We are not the only military nation who have committed this error. In the last war (previous to 1815) the French cuirassiers were reduced to charge at a trot, their horses being unable to carry such weight at a quicker pace. In their attack on an enemy's position, the losses they sustained from the want of speed were frequently awful. Under the improved fire of the artillery and infantry of the present day, these slow attacks never could be carried out at all.[3]

14. 'In the Prussian army (1868),' the cavalry carry no valises, the cloak is rolled and fastened to the cantle of the saddle, the kit is carried part in the wallets, part across the seat and part is laced into the saddle seat; thus the rider's hand is brought low (which with us is the great desideratum) there being nothing but the shabraque above the wallets.[4]

15. The principal value of cavalry is derived from its rapidity and ease of motion. To these characteristics may be added its impetuosity; but we must be careful lest a false application be made of this last.[5]

16. Cavalry has no power of exercising a decisive influence on an action by its fire; and that it should possess the power of delivering fire at all has been considered by many as destructive of its legitimate function. Its power resides in the impetus of its charge. A certain

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[1] Nolan [2] Marmont [3] Nolan. [4] W.H.G.

[5] Jomini, Chap. VII., Art. 45.

distance must interpose between the front of cavalry and the troops it is about to assail, in order to give it a career in which to combine perfect order with the requisite momentum.[1]

17. Heavy cavalry should have the largest and most powerful horses, but the men and their accoutrements should be light. If you weight the powerful horses with heavy men and accoutrements, you bring them down to a level with smaller and weaker horses. Thus a great heavy man in armour, on a fine strong horse, could not catch or ride down a Cossack on a good pony; but the same horse, with a light active man on his back, would ride down a dozen of such Cossacks, one after the other. In a charge, the same horses with light weights will, by their speed and impulsive power, ride down or over obstacles which would certainly stop them if heavily weighted. The heavier the man, the less available the high qualities of the horse, and the less formidable the man on his back.[2]

18. * * * The experience of the campaign—"the German war, 1866,"—has taught that needle-guns and rifled artillery have no more driven cavalry and even very heavy cavalry, from the field of battle than they have from the theatre of war; but it has been found that, in the shock of closing squadrons, small men and light horses must go down before the powerful onset of stouter assailants. The Prussians found that, in future, cavalry must be formed and equipped so as to allow strong troopers to be brought into the field; but strong troopers ride heavily, and heavy loads tell fearfully on horses on the line of march; so, to secure power in the charge with rapidity of movement, the dead weight which cavalry horses now carry must be reduced almost to nothing, and the horse must be required to bear little more than the rider, his arms, his cloak, and a light saddle. Valises will have to be carried in waggons in rear of the regiments, or left at some convenient place whence they can be forwarded to the front by railway or water transport, when the army halts. In this war, the Prussian cavalry gained a glorious and unexpected reputation from its conduct in the field; but its horses suffered much from marching, especially in crossing the highland country which lies on the frontiers of Bohemia and Moravia.[3] * * * *

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[1] Hamley, Part VI., Chap. II.

[2] Nolan.

[3] Hozier, Vol. II.

19. Cavalry ought to be at once the eye, the feeler, and the feeder of an army. With good cavalry an army is in comparative security, and in a condition to march into and subsist upon an enemy's country. It reaps the fruits of victory, covers a retreat, and retrieves a disaster. With it the effects of a defeat are not always fatal, and with it the army can again resume the offensive.[1]

20. Cavalry is instituted for hand-to-hand fighting; it is to cross swords with the enemy, to shock, to overthrow, to pursue. To pursue an enemy is its habitual office; for it is rare that the two parties come into collision. Almost at the moment of contact, the less confident of the two halts, and then turns to flight.[2]

21. It is the business of cavalry to follow up the victory, and to prevent the beaten enemy from rallying.[3]

22. * * It is probably as much from the nature of the country as from defective discipline, that 'Cavalry has in both the Federal and Confederate armies of the Northern States of America,' been of very little service in the greater actions: and from feeling, under such circumstances, the hopelessness of any bold attack made on infantry, even though disordered, the cavalry generals have allowed their squadrons to take up a desultory skirmishing mode of fighting, most detrimental to their usefulness, and likely to be confirmed into an evil tradition. Such was once the custom in European armies, until Frederick the Great broke through it, and introduced one of the greatest of modern tactical improvements, by compelling his cavalry to charge the enemy at a gallop, and use their swords rather than their fire-arms.

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As a direct result of their shortcomings in the most important duties of modern cavalry, the completing of the victory, prepared or partly won by the infantry and artillery, we find the most decisive defeats of the war so ill followed up, as to be robbed of great part of their expected fruits. McClellan was unable to press his first advantage at South Mountain, and Meade his victory at Gettysburg, as Johnston and Lee their brilliant successes at Bull's Run and Manasses. That the same cause would in Europe be followed by a like unfinished result, is well known to the critical reader of Napoleon's campaigns. Engaging suddenly, in 1813, in his desperate struggle in Germany against the Allies, that great general, stripped by his Russian disaster of the famous squadrons of Murat, entered on his campaign without awaiting the dragoons, who were to be brought from Spain, or created in France; and as a consequence of this special deficiency, saw the two great victories of Lutzen and Bautzen prove fruitless for the destruction or dispersal of the Russo-Prussian army. Ten thousand horse, to have completed his advantage at the former, might have spared him an indecisive campaign, chained Austria to her timid policy of neutrality, and arrested the tide which was sweeping him to ruin.[1]

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[1] Nolan. [2] Marmont. [3] Napoleon.

23. "In the Peninsula war," the victories of Rolica and Vimiera were rendered incomplete from the deficiency of cavalry; a deficiency from which British armies have too often suffered.[2]

24. Whatever may be its importance in the *ensemble* of the operations of war, cavalry can never defend a position without the support of infantry. Its chief duty is to open the way for gaining a victory, or to render it complete by carrying off prisoners and trophies, pursuing the enemy, rapidly succouring a threatened point, overthrowing disordered infantry, covering retreats of infantry and artillery. An army deficient in cavalry rarely obtains a great victory, and finds its retreats extremely difficult.

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All are agreed that a general attack of cavalry against a line in good order, cannot be attempted with much hope of success, unless it be supported by infantry and artillery. At Waterloo, the French paid dearly for having violated this rule; and the cavalry of Frederick the Great fared no better at Kunnersdorf. A commander may sometimes feel obliged to push his cavalry forward alone, but generally the best time for charging a line of infantry, is when it is already engaged with opposing infantry. The battles of Marengo, Eylau, Borodino, and several others prove this. There is one case in which cavalry has a very decided superiority over infantry,—when rain or snow dampens the arms of the latter, and they cannot fire. Augereau's corps found this out, to their sorrow, at Eylau, and so did the Austrian left at Dresden. Infantry that has been shaken by a fire from artillery, or in any other way, may be charged with success. A very remarkable charge of this kind was made by the Prussian cavalry at Hohenfriedberg in 1745. A charge against squares of good infantry in good order cannot succeed.[1]

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[1] Campaigns in Virginia, &c.

[2] Wellington Disp.

25. Wellington, in a conversation with the historian of the Peninsula war, remarked,—"General Hill had 26,000 men in front of Salamanca. He tried to break the squares of the enemy's infantry (in retreat) with his cavalry, but failed every time. Lord Wellington thought it a bad manœuvre, not to be done without a mass of artillery."[2]

26. 'In 1866,' at Langensalza, the Hanoverian heavy cavalry succeeded in forcing an entrance into Prussian squares. But it was only when the Prussians were in retreat, and their squares were composed of mixed regiments, including the untrustworthy Landwehr. And not only so, but when the squares were broken, the horsemen suffered more than the foot soldiers, and the squares were re-formed. In the Bohemian campaign, more than one instance occurred where the Austrian cavalry, as gallant horsemen and good swordsmen as exist in the world, charged Prussian infantry in line or in company columns, only to be sent back reeling and shattered by the "quick-fire" of the needle-gun.[3]

27. In the defensive, cavalry may also produce very valuable results, by opportune dashes at a body of the enemy, which has engaged the opposing line, and either broken it through or been on the point of so doing. It may regain the advantages lost, change the face of affairs, and cause the destruction of an enemy flushed and disordered by his own success. This was proved at Eylau, where the Russians made a fine charge, and at Waterloo, by the English cavalry.[4]

28. Charges of cavalry are equally useful at the beginning, the middle, and the end of a battle. They should be made always, if possible, on the flanks of the infantry, especially when this last is engaged in front.[5]

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[1] Jomini, Chap. VII., Art. 45.
[2] Sir William Napier.
[3] Times, Nov. 1, 1869.
[4] Jomini, Chap. VII., Art. 45.
[5] Napoleon.

29. During the retreat of the allied armies of Russia and Prussia, in 1813, after the battle of Bautzen,'—the most remarkable affair was one which took place at Haynau, between Marshal Ney and the rear-guard of the right column; it had been preconcerted by Blucher in person, and is one of the most brilliant cavalry affairs of modern days, since the improvement of fire-arms, and the use of the bayonet, have deprived that arm of much of the influence it possessed in times less removed from the age of chivalry in which it was paramount. The Prussian general having passed his main column across the bridge and through the defile of Haynau, still defended the entrance to the village with the tirailleurs of his rear-guard; but finding that the nature of the ground in rear of Haynau favoured his purpose, he formed five regiments of cavalry in mass behind the village of Baudmansdorf, in a situation completely concealed from the enemy's view by the village and an intervening rising ground. This ambuscade was formed obliquely to the line of retreat of the main column, which traversed an uninclosed country, and to the southward of the line. When all was arranged, the three regiments forming the rear-guard gave up the bridge at Haynau and retired, following the main column to a good rear-guard position on the direct road to Liegnitz, and a few miles from Haynau. Here they halted and showed front, inviting an attack. As soon as Ney's advanced-guard had passed the defile, entered the plain, and deployed to attack the Prussian infantry rear-guard, a preconcerted signal was given—the burning of a windmill. The allied cavalry, masked till that moment, now deployed in two lines on the right of the enemy, and moved rapidly onwards to attack them in flank. The success of the cavalry was complete. The French lost 1500 men and eleven guns. Ney himself, it is said, narrowly escaped. Colonel Dolf, who commanded the attack, was unfortunately killed. But the loss of the allies did not amount to a hundred men.[1]

30. "Respecting the independent employment of cavalry, or otherwise, under their own commander, Col. Hamley in his work, 'Operations of War,' after commenting upon the chief of the cavalry in Frederick's battles selecting his own time for the attack; Napoleon requiring in the wars of the Empire, when great masses of cavalry were brought on

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[1] Cathcart.

the field, that their commander should judge of and seize opportunities for action; also Wellington's desire to keep the constant control of his cavalry in his *defensive* battles, that the leaders of troops should set themselves in motion, the very moment they received their fresh orders instead of pursuing the opposite course, and engaging in their own enterprises, unknown to the general in command, thus observes:"—It appears, then, that when a powerful cavalry is supporting offensive movements, its commander should be allowed considerable discretionary power; but that the cavalry of an army which awaits its adversary, especially if inferior in force, should be constantly under the direction of the commander-in-chief. But this of course does not apply to the divisional cavalry, or squadrons which, in continental armies, form part of the division or corps.[1]

31. "At Königgrätz," the masses of Austrian cavalry remained unemployed till the battle was lost, But there was a moment when, as it seems, they might have been launched forth with decisive effect. It was when spectators on the western bank of the Bistritz saw the columns of the Guard mounting the slopes round Lipa, till their final rush drove the defenders from the breastworks. That beginning of the end might have been avoided, or postponed, had the Austrian squadrons, issuing from each side of Lipa, borne down upon the Prussian infantry, who, even had they held their ground, must still have been checked under the fire of the position, while it is quite possible that some of the columns might have been taken unprepared and scattered by the charge.[2]

32. A flank attack being much more to be apprehended by cavalry than in a combat of infantry with infantry, several squadrons should be formed in echelons by platoons on the flanks of a line of cavalry, which may form to the right or left, to meet an enemy coming in that direction. For the same reason, it is important to throw several squadrons against the flanks of a line of cavalry which is attacked in front.[3]

33. Two essential points are regarded as generally settled for all encounters of cavalry against cavalry. One is that the first line must

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[1] Hamley, Part VI, Chap. II. [2] Blackwood's Mag. [3] Jomini, Chap. VII, Art. 45.

sooner or later be checked; for, even upon the supposition of the first charge being entirely successful, it is always probable that the enemy will bring fresh squadrons to the contest, and the first line must at length be forced to rally behind the second. The other point is that with troops and commanders on both sides equally good, the victory will remain with the party having the last squadrons in reserve in readiness to be thrown upon the flank of the enemy's line while his front is also engaged.[1]

34. 'At the battle of Wachau near Leipzig, in 1813, the French cavalry commanded by Murat,' were standing in formidable array, on the shoulder of the hill of Liebertwolkwitz. The object of this display, probably was, in the event of the allies having any troops, which might be concealed by the ground in that part of the field, especially cavalry, to induce them to show them. A small brook or drain ran from Gossa towards the Pleisse, and in rear of the place where the two Russian regiments had taken post. Its banks happened to be swampy and could only be passed with difficulty, and a leap across a wide drain, unless by causeways, made in two or three places by the farmers, for agricultural purposes. This obstacle was only partial, and a few hundred yards to the right, near Gossa, it ceased to be an impediment. * * * * The French (5000 strong) advanced, in line of contiguous columns of regiments; certainly in one body only, that is with no sort of second line or reserve. No doubt they expected to dispose of their first opponents easily, and then to attempt a more important attack on Wittgenstein's right. The narrowness of the front to be attacked, as well as the nature of the ground, caused this powerful force to crowd into one dense mass before it came in contact with the Russian dragoons; these were overwhelmed, and driven across the swamps, or over the causeways. Many of the rearmost were killed; but the rest rallied as soon as they had crossed the brook. The lancers, who were in second line, retired by their left to another causeway, but did not cross it, and formed again. But the enemy themselves were unexpectedly checked by this unforeseen obstacle; their crowding and confusion increased; and at that moment the Russian regiment of hussars of the guard, which Wittenstein had sent to take part with the rest of the brigade, appeared in their rear. This caused a panic. The

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[1] Jomini, Chap. VII., Art. 45.

unwieldy mass became noisy, and attempted to retire; the Russian light cavalry instantly followed them. The Emperor Alexander, who stood on the hill above, seized the opportunity to send off his own escort of Cossacks of the guard, amounting to several squadrons, under Count Orloff Denissoff, who passed the stream at a favourable spot near Gossa, and took the retiring mass in flank. This completed the panic, which then became a flight, and the fugitives did not draw their bridles till they had regained the protection of their infantry. * * * * Thus 5000 of the French cavalry, led by Murat in person, were foiled by an insignificant obstacle. They were seized with a panic; and, for want of a second line on which to rally, and from which to take a fresh departure—a precaution without which no cavalry attack ought ever to be made—they were obliged to abandon their enterprise, and fly before a force of light cavalry, which altogether could not have amounted to 2000 men.[1]

35. The excessive negligence, on the part of English cavalry officers, in not supporting their attacks by a reserve, frequently, during the Peninsula war, produced the most pernicious consequences.* The following case was so glaring, that Lord Wellington ordered a court of enquiry upon it. In the month of June, 1812, Major-General Slade was ordered to advance from Llera in the direction of La Granja, to cover a reconnoissance. For this purpose, he took with him two regiments of cavalry. General Lallemande, having a like object, came forward also with two regiments of French dragoons, on the side of Valencia de las Torres. Slade, hearing that the French cavalry was so near, attacked it and drove it back beyond the defile of Maquilla, a distance of eight miles, his troopers, in the heat of the pursuit, breaking into a confused mass. But Lallemande had here his reserves in hand,† and attacking the disorderly English horse, totally routed it.[2]

36. The attack in oblique line, or as it was formerly called in *écharpe*, is the most formidable of all the orders of attack, and ought never to be omitted, when practicable, as it is the most difficult of all others for an enemy to resist, or evade. An officer who perceives the enemy forming an oblique line, with an intent of attacking him in his position, cannot

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* Wellington Dispatches.

† Napier, Vol. V.

[1] Cathcart.

[2] Jervis.

make use of a more effectual manœuvre to counteract it, than by instantly moving forward to attack him, before he has completed his disposition; this manœuvre, by reducing him from the offensive to the defensive, must totally derange his plan of operations, will oblige him suddenly to form a new order of attack, totally different from his original intention, which cannot fail of being defective, as it is the effect of precipitation, and almost surprise. Such decided movements, as that above proposed, by deranging the preconcerted plans of an enemy's attack, in the moment of their execution, are capable of producing very great and advantageous effects.

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It is therefore very important to conceal, as much as possible, the dispositions preparatory to an attack, in oblique line, from the enemy. A corps of light cavalry should be thrown forward, to prevent him from reconnoitring the previous movements, and to mask, by every means in their power, the disposition of the line, until it is ready to move forward to the attack; or feigned demonstrations might be made, in various directions, to deceive and confound the enemy, and prevent his having any distinct conception of the real attack, until it is too late to avoid, or counteract it.[1]

37. With a large body of cavalry it is difficult to gain an enemy's flank, but with small detachments the opportunity often occurs. Cavalry officers, when they see a good chance given them by the enemy, should never wait for a better one If the enemy's cavalry have to clear a ditch, a hollow way, or any other obstacle in their front, let them attempt it, and fall on before they have recovered their order or resumed the speed of their advance.[2]

38. Cover your movements and protect your flanks with skirmishers, and reinforce them according to circumstances when within reach of the enemy. Under the protection of your skirmishers watch the adversaries' movements. The officers with the skirmishers must keep a good look out on the flanks, so as not to overlook any movement towards them, favoured by the ground, or covered by a village or other enclosures. By a manœuvre of this sort the French cavalry were defeated by the Austrians at Wurzburg. The Archduke Charles sent fourteen squadrons

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[1] Warnery. [2] Nolan.

to turn a village whilst the French were advancing to attack his cuirassiers; the hussars allowed the French line to pass the village in their advance, then gallopped in on their rear and did great execution. When ordered to attack, take the initiative, and when advancing against a superior force likely to outflank you, keep troops in reserve behind your flanks with orders to act as circumstances require. Thus having secured your flanks, and being backed up by a reserve, fall on without hesitation at the favourable moment—such as a change in the dispositions of the enemy, when they are in unfavourable ground, or when they are suffering from the fire of your artillery. The enemy may try to take you in flank or surround you, but whilst taking ground to the right or left for that purpose he exposes his own flank, and the troops behind your flanks must take him in the fact whilst you charge home.[1]

Echelon movements.

39. The difficulty of advancing with a long line, and the danger of being driven back at all points at once, make it advisable to use echelons, instead of attempting to charge on a large front in line. Echelons are useful when debouching from a defile to support troops already engaged or defeated; also to pass through intervals and attack a line made unsteady by the fire of infantry or artillery, and fall on without giving them time to restore order.[2]

40. The echelon should not be formed of less than a wing, or it would hardly take effect against an enemy's line: further, wings can break into echelon, columns of troops, contiguous double and single open columns, and thus become handy in every way.[3]

41. Lines deployed checkerwise or in echelons, are much better for cavalry than full lines. * * * * * * Whether checkered or full lines be used, the distance between them ought to be such that if one is checked and thrown into confusion the others may not share it. It is well to observe that in the checkered lines the distance may be less than for full lines. In every case the second line should not be full. It should be formed in columns by divisions, or at

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[1] Nolan. [2] *Ibid.* [3] *Ibid.*

least there should be left the spaces, if in line of two squadrons, that may be in column upon the flank of each regiment, to facilitate the passage through of the troops which have been brought up.[1]

42. At Château-Thierry, in 1814, the Prussian General Horn, with twenty-four squadrons, was ordered to keep the French in check until the Russian General Sacken, could cross the Marne, after his defeat at Montmirail, 30th January, 1814. He formed these troops in two lines of twelve squadrons each without intervals. The whole first line advanced to the attack. The French waited till it came to a proper distance, and routed it. These squadrons threw the second line into disorder, and carried it away *pêle-mêle*, in every direction over the plain.[2]

43. The formations in direct echelons of squadrons are useful for the passage of lines, used in relieving one line by another, and on other occasions. The lines being formed in direct echelons of squadrons at half distance, the same flank leading in both lines; if the second line be moved up and halted, so as to place the echelons opposite to the intervals between the echelons of the first line, the squadrons composing the echelons of the first line, can wheel by threes or divisions to a flank. Then if each echelon takes ground to the flank at the gallop, halts, and fronts in rear of the corresponding echelon of the second line, the front of the second line echelons will be left clear, and line can be formed to the front at once by the direct movement.

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The movement by alternate squadrons retiring and advancing might also be applied to the same purpose; and this movement, as well as echelons at full distance from the centre, if employed for a second line acting in support, leaves plenty of room for the passage of the first line to the rear in case of a reverse.[3]

44. The advance in echelon is often more advantageous for cavalry than in a long line. It is difficult to advance in the latter formation without falling into confusion, or being driven back on all points at once; while in echelons of regiments, you can at once take advantage of any hesitation or confusion in the enemy's ranks, without delaying to

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[1] Jomini, Chap. VII., Art. 45.

[2] (Russian Campaign in France, 1814.) Jervis.

[3] General Smith.

form line, when the opportunity might be lost. Again, the different parts of the echelon coming up one after the other, partake somewhat of the nature of reserves; and the enemy cannot attempt to attack the leading echelon in flank, for if he does so, he exposes his own to the next echelon coming up.[1]

45. The cavalry column of attack should never be formed *en masse*, like that of infantry; but there should always be full or half-squadron distance, that each may have room to disengage itself and charge separately. This distance will be so great only for those troops engaged. When they are at rest behind the line of battle, they may be closed up, in order to cover less ground and diminish the space to be passed over when brought into action. The masses should, of course, be kept beyond cannon range.[2]

46. At Austerlitz, the allied cavalry was well commanded, well mounted, and manœuvred. It was therefore necessary to act with prudence; to be always prepared for flank attacks by the enemy. During this battle, the charges were sustained by successive echelons which kept the several portions in constant communication with the rest of the army, and prevented the enemy from attacking the flanks with success. As soon as one of these echelons became engaged within the line, the others moved to its support.[3]

The Lance, versus *the Sword.*

47. Of the respective merits of the lance and sword, as opinions differ, some are here introduced; commencing with that of Marshal Marmont:—

"The lance is the weapon for cavalry of the line, and principally for those destined to fight against infantry. The sabre cannot supply its place; armed with sabres, what use could cavalry make of them, if the infantry remain firm, and are not struck with fright? The horseman cannot sabre the foot-soldier; the bayonets keep the horse at too great a distance. * * * On the contrary; suppose the same line of cavalry, furnished with a row of pikes, which stand out four feet in front of the horses, and the chances of success are different.

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[1] Denison. [2] Jomini, Chap. VII., Art. 45. [3] Ambert.

But the sabre is more befitting than the lance for light troops. In hand-to-hand conflicts, a short weapon is handled more easily, and is more advantageous than a long one. All other things being equal, it is certain that a hussar or chasseur will beat a lancer; they have time to parry and return the blow, *(riposter,)* before the lancer, who has thrown himself upon them, can recover himself for defence."

48. Formerly it was a received opinion that the lance was particularly formidable in single encounters, that the lancer should be a light, active horseman, and that space was required whereon he might manage his horse, and turn him always towards the object at which he was to thrust. But of late there seems to be rather a disposition to take up Marshal Marmont's notion of arming heavy cavalry with lances, to break infantry as well as cavalry. All seem to forget that a lance is useless in a mêlée; that the moment the lancer pulls up, and the impulsive power is stopped, that instant the power of the weapon is gone. The 16th Lancers broke into the Sikh squares at Aliwal, and in the mêlée that ensued, these brave men attacked the lancers, sword in hand, and brought many of them low, for they could effect nothing with the lance. If lances be such good weapons, surely those who wield them ought to acquire great confidence in them; whereas, it is well known that in battle, lancers generally throw them away, and take to their swords.[1]

49. In charges in line, the lance is very useful; in mêlées, the sabre is much better; hence comes the idea of giving the lance to the front rank, which makes the first onslaught, and the sabre to the second rank, which finishes the encounter usually in individual combats. It would be, perhaps, better to support a charge of lancers by a detachment of hussars, who can follow up the charge, penetrate the enemy's line, and complete the victory.[2]

50. The lance is a most efficient weapon when used by a thoroughly trained man, but in the hands of raw levies it is perfectly worthless. In carefully disciplined cavalry of the line, intended for charging alone, the lance has a terrible moral effect upon the enemy, and without doubt is a most deadly weapon in the shock of closing squadrons, or the shock of cavalry against squares. When the fight however degenerates into the *mêlée,* then the lance is awkward and cumbersome.[3] * * * *

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[1] Nolan. [2] Jomini, Chap. VII., Art. 45. [3] Denison.

51. The following extract from a letter of Oliver Cromwell, giving an account of the battle of Dunbar, shows clearly that arming the front ranks of cavalry with lances is but an old custom revived:—"The dispute on this right wing was hot and stiff for three-quarters of an hour. Plenty of fire from field pieces, snaphames, match-locks, entertains the Scotch main battle across the Brock; poor stiffened men roused from the corn shocks, with their matches all out! But here, on the right, their horse, *with lancers in the front rank*, charge desperately; drive us back across the hollow of the rivulet; back a little; but the Lord gives us courage, and we storm home again, horse and foot upon them, with a shock like tornado tempests; break them, beat them, drive them all adrift."[1]

52. • • • • Very many both of the officers and men, "3rd Regt. of Dragoons of the Prussian Cavalry in the Seven Weeks' War, 1866," • • were victims to terrible sword cuts, which, coming down upon the shoulder, cut clean through the shoulder-blade, and often deep down into the body; awful memorials of the strength of arm of the Austrian horsemen. Much did the officers of this regiment complain of the absence of epaulettes, which they estimated would, by defending the shoulder, have saved half the men they had left behind them; a complaint which was to some extent, borne out by the fact that the ultimate overthrow of the cuirass regiments of Austria, was due to the arrival of some of Hohenloe's Uhlans, who took them in flank. Then, though the heavy swordsmen turned upon Hohenloe's men, their swords were shivered upon the brass plates which lay upon the shoulders of the Uhlans, for these, unlike the rank and file of the rest of the Prussian cavalry, carried epaulettes, and though the blows were aimed at the head, the smaller object was nearly always missed, and the sharp edge descended, only to be dinted or broken upon the protected shoulder; while the Uhlans, with their lances held short in hand, searched out with their spear-heads unguarded portions of their antagonist's bodies, or, dealing heavy blows with the butt-end of their staves, pressed through the thick ranks of the heavy horsemen, marking their track with great heaps of dead, dying, or wounded.[2] * * * * * *

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[1] (Carlyle's Cromwell) Nolan.

[2] Hozier, Vol. II.

53. Opinions are very much divided, 'says Warnery,' with regard to the advantage or superiority of the edge or the point of the sword for cavalry in action; each have their advocates equally zealous, who produce such instances as are in favour of that they prefer; but after much reflection on this important subject, frequent observations of the advantages and disadvantages of each, and some experience, during many years actual service in the cavalry, I hope I shall be permitted to mention my reasons for giving a decided preference to the latter. The point of the sword is more advantageous than the edge, because with it you can reach your enemy at a greater distance than with the other, the smallest wound with it renders the wounded incapable of serving during the remainder of the action at least; it does not require so much force to give a dangerous wound with a thrust as with a cut, and the effect of the latter is much more uncertain, unless it happens to be particularly well placed, which it is hardly possible to do, unless you have your enemy as it were under your hand: in short, if he has a helmet or hat, with an iron callotte upon it, with large sides, and firmly fixed to the head by a thong or strap, he can hardly be touched with the sabre, except in the arm. Charles XII. was so confident of the superiority of the point over the edge, that he gave all his cavalry very long swords, and so narrow, that they could be made no other use of than to thrust with the point. * * * *

54. The late Major-General John Jacob, formerly commanding the Sind Irregular Horse, has recorded his personal experiences, thus: "Great mistakes exist regarding the respecting powers of the edges and points of swords. On foot, or when moving slowly, it is unnecessary to argue in favour of the point of the fencer; its superiority is evident to all. But on horseback, *the speed of the horse prevents the swordsman from drawing back his arm with sufficient rapidity after a home thrust.*

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The straight sword, and the use of its point, are far more formidable than the cutting sword in the hands of men on foot; and I was myself strongly prejudiced in their favour for use on horseback also, until many trials in the field quite convinced me of the contrary. On horseback, when moving at a rapid pace, as the cavalry soldier ought always to be in attacking, the arm, after a home-thrust, cannot be drawn back sufficiently quickly; the speed of the horse carries all forward with great velocity, and the blade runs up to the hilt, or breaks, before it can be withdrawn."

The Charge.

55. The first object is to break through and disorder the enemy's array, then make use of the sword to complete his discomfiture. Powerful horses urged to their utmost speed, their heads kept straight and well together, will seldom fail to attain the first object in view; sharp swords, individual prowess and skill do the rest. Officers must bear in mind that however successful a brave and determined body of horsemen may be, there is a limit to everything. The horses must in time get blown, the men tired out, the squadrons scattered; they are then at the mercy of any body of fresh horsemen.[1]

56. Reserves must always be at hand to follow up steadily any success achieved, or, in case the first line is brought back, which is sure to happen sooner or later, to fall upon the pursuing enemy, and give the fugitives time to re-form. Innumerable reverses are attributable to the neglect of these rules about reserves. In an attack upon cavalry formed and advancing to meet you, spare your horses and husband their resources for the hour of need.[2]

57. If you meet the enemy's cavalry with blown horses, you are pretty sure of being thrown; but even should success attend the first rush, that success would be useless, for it could not be followed up.[3]

58. Cavalry is never weaker or easier overcome than immediately after a success. The men and horses are blown, the lines disordered, confusion reigns paramount, orders are not heard or attended to, and a force falling upon it in that state will invariably put it to rout.[4]

59. Napoleon's cavalry generals often failed in bringing their troops into action at the right time, and often threw them too early into the scale, and so, when a reserve of cavalry might have decided the fate of battle, none was forthcoming. They often neglected to protect their flanks, or to have a reserve on hand in case of disaster. Instances of

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[1] Nolan. [2] *Ibid.* [3] *Ibid.* [4] Denison.

this sort might be adduced of the English cavalry. Charges, gallant and daring in their character, were turned into disgraceful defeats or dreadful losses by the culpable negligence of their officers in not having reserves in hand, to protect the flanks during an attack, or to oppose an enemy coming on with fresh troops.[1]

60. A cavalry engagement is seldom decided by a single charge, but the advantage remains with those who have the last reserve of fresh troops at their disposal: this generally turns the fortune of the day. As a general rule, cavalry should not be brought into action too early in the day, unless, indeed, a favourable opportunity offers; then, of course, make the most of it. It should be held in hand to decide the victory, to retrieve lost ground, to cover a retreat, and save the army from the loss of artillery, &c.: and for any serious exertion fresh men and horses are absolutely necessary.[2]

61. Equitation is everything. It is what subdues the horse and tames him. The manœuvres will always be sufficiently correct, if the soldiers are good horsemen. Encouragements of everything should be held out to further this object. The troops should be accustomed to charging to the enemy's centre, without being particularly careful to preserve a certain order, incompatible with this impetuosity, which is the best means of beating the enemy; but, at the same time, they should be habituated to rally, at the first signal, with promptness and dexterity. They should be constantly placed in these circumstances, that they may be prepared for them by all necessary means. Thus the apparent disorder of the charge will have no influence upon their morale. On the other hand, if the charges, while under instruction, be feeble and moderate, they will be less powerful still, when before the enemy, and will never overthrow him; and, at the first disorder, the soldiers will think themselves lost. There is a usage often practised at drills, great evolutions, and sham-fights: the cavalry is made to charge upon the infantry; and in consideration of its being only a simulated combat, the cavalry is halted before having reached the infantry, or it escapes through the intervals. Nothing can be worse than this kind of education for the horses; being thus accustomed to avoid the point of attack as an obstacle, they can never be made to come to close quarters,

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[1] Nolan.

[2] *Ibid.*

for their habits accord with their instinct, and perhaps with that of their riders. This practice is pernicious; it should be banished from the drill, and replaced by an entirely different lesson. The war results would be immense. * * Place a line of infantry opposite a line of cavalry; give such distance between the files in the two lines, that a horse and a man may easily pass them. The cavalry waver at first, even at a walk, but they pass through the infantry; they try it again and again, many times at a trot and at a gallop, until the horses execute the movement, so to speak, of themselves. The movement is then accompanied with a few musket shots, along the whole line, increased in number as the instruction proceeds; and if it be desired to increase the noise, the infantry files may be formed in six ranks, and the noise of the firing is then equal to that of a whole battalion. After many days of similar exercise, a cavalry corps will be better fitted than others, not thus instructed, to attack infantry, and the horses, well set up and accustomed to precipitate themselves upon a fire which they have learned to face, will of their own accord carry their riders along, if the latter should be tempted to moderate their ardour.[1]

62. At the Austrian Military Camp of Brück, in 1868, the cavalry only attacked, when in case of repulse, they could retire on infantry. To this manœuvre, the Austrians describe the terrible loss they sustained in cavalry at Königgratz and elsewhere. In almost every instance 'it was stated,' the Prussian cavalry gave way and pursued by the Austrians, the former opened out and uncovered a line of infantry, who rarely failed in giving a good account of the too-dashing Imperialists.[2]

63. It cannot be too often repeated that, under no circumstances, should cavalry await a charge at the halt. To wait for a charge, halted, is to place oneself on the defensive; but as cavalry is essentially an arm of offence, it should attack, and not simply defend itself. This rule held good, in the times of Gustavus, Adolphus and Turenne, as well as in those of Frederick and Napoleon. It will always continue so. At Zorndorf, the deep columns of the Russian cavalry paid dearly for their error in not having deployed, and especially in awaiting at the halt, for the charge of Prussian horse. Put to complete route, they were unable to re-form and enter again into line.[3]

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[1] Marmont. [2] Foreign Tour. [3] Ambert.

Light Cavalry.

64. In the opinion of Marmont—"the Russian army possesses an immense advantage over all the other armies of Europe. The Cossacks, belonging to it, form a light cavalry, excellent, indefatigable, and intelligent; they know how to find their way in trackless places, (s'orienter) with precision, thoroughly to reconnoitre a country; to observe everything, and to take independent care of themselves. They cannot be compared to any light troops, systematically instructed for that service; they are formed by nature; their intelligence is developed by the daily wants to which they are subjected. I speak of the Cossacks of the frontier, who, constantly at war with their neighbours,—always in presence of a skilful and enterprising enemy,—are obliged to be, at every moment, on the alert for their own safety."

65. Marshal Saxe wrote thus to the King of Sweden.

"An army deficient in light cavalry, or which has not sufficient to hold its own against that of the enemy, can be compared to a man clad in complete armour engaged in a contest with a crowd of schoolboys, armed only with clods of earth. The '*Hercules*' would soon be compelled to retreat, out of breath and covered with shame and confusion."

Is not this principle equally applicable to modern armies? Concentrated in enormous masses, do they not form veritable 'colossi,' which hurl themselves confusedly one against the other, unless they have a powerful light cavalry to feel the way for them. It will be indispensable to explore the probable field of battle in advance, and in every direction, in order that the chief may have reliable data on which to form his plans.[1]

66. In the North American Campaign of 1863, culminating at Gettysburg, General Lee attributed his ignorance of the position and movements of the Northern army, which led to the failure of his operations, to his being destitute of this arm; Stuart's cavalry, on which he depended for information, having got too far away from him. In Pope's campaign in 1862, the rebels, by their cavalry raid on Catlett's station, obtained possession of the commanding-general's

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[1] Ambert.

correspondence, plans, and orders from Washington. On the other hand, whilst keeping us informed of the enemy's movements, an abundant light cavalry, active and well commanded, may be so used as to constitute an impenetrable screen of our own movements from the enemy, as effectual as would be a lofty and impassable mountain range. Again, if we are greatly inferior to the enemy in cavalry, our own cavalry will have to keep itself within our infantry lines; and the consequence will be that the enemy will obtain control of the entire country around us, and so deprive us of all the supplies it contains. As, besides this, cavalry is absolutely necessary for the protection of convoys, and, from its celerity of movement, is the kind of force best fitted for guarding our communications, it is evident that the subsistence of an army is dependent, to a great extent, upon this arm.[1]

SECTION II.

IRREGULAR CAVALRY AND MOUNTED RIFLES.

Irregular Cavalry.

1. The history of the wars between 1812 and 1815 has renewed the old disputes upon the question whether regular cavalry will, in the end, get the better over an irregular cavalry which will avoid all serious encounters, will retreat with the speed of the Parthians, and return to the combat with the same rapidity, wearing out the strength of its enemy by continual skirmishing. * * * *

* * * Experience has shown that irregular charges may cause the defeat of the best cavalry in partial skirmishes; but it has also demonstrated that they are not to be depended upon in regular battles upon which the fate of a war may depend. Such charges are valuable accessories to an attack in line, but alone they can lead to no decisive results. * * * * *

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[1] Lippitt.

Whatever system of organization be adopted, it is certain that a numerous cavalry, whether regular or irregular, must have a great influence in giving a turn to the events of a war. It may excite a feeling of apprehension at distant parts of the enemy's country; it can carry off his convoys, it can encircle his army, make his communications very perilous, and destroy the *ensemble* of his operations. In a word, it produces nearly the same results as a rising *en masse* of a population, causing trouble on the front, flanks, and rear of an army, and reducing a general to a state of entire uncertainty in his calculations.

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The immense advantages of the Cossacks to the Russian army are not to be estimated. These light troops, which are insignificant in the shock of a great battle, (except for falling upon the flanks), are terrible in pursuits and in a war of posts. They are a most formidable obstacle to the execution of a general's designs; because he can never be sure of the arrival and carrying out his orders, his convoys are always in danger, and his operations uncertain.[1] * * *

2. "The Cossacks," says General de Brack, "were an arm which rendered the war highly dangerous, especially to such of our officers, as were entrusted with making reconnoissances.* Many among them, and especially of the general staff, selected by the Major-General, preferred forwarding the reports which they received from the peasantry, to going to a distance and exposing themselves to the attacks of the Cossacks. The Emperor, then, could no longer know the state of affairs." Again; General Morand, another French officer, says, "But these rude horsemen are ignorant of our divisions, of our regular alignments, of all that order which we so overweeningly estimate. Their custom is to keep their horse close between their legs; their feet rest in broad stirrups, which support them when they use their arms. They spring from a state of rest to the full gallop, and at that gallop they make a dead halt; their horses second their skill, and seem only part of themselves; these men are always on the alert, they move with extraordinary rapidity, have few wants, and are full of warlike ardour. What a magnificent spectacle was that of the French cavalry flashing in gold and steel under the rays of a June sun, extending its lines upon the flanks of the hills of the

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* Russian War of 1813.

[1] Jomini, Chap. VII, Art. 45.

Niemen, and burning with eagerness and courage! What bitter reflections are those of the ineffectual manœuvres which exhausted it against the Cossacks; those irregular forces, until then so despised, but which did more for Russia than all the regular armies of that empire! Every day they were to be seen on the horizon, extended over an immense line, whilst their daring flankers came and braved us even in our ranks. We formed and marched against this line, which, the moment we reached it, vanished, and the horizon no longer showed anything but birch trees and pines; but an hour afterwards, whilst our horses were feeding, the attack was resumed, and a black line again presented itself; the same manœuvres were resumed, which were followed by the same result. It was thus, that the finest and bravest cavalry, exhausted and wasted itself against men whom it deemed unworthy of its valour, and who, nevertheless, were sufficient to save the empire, of which they are the real support and sole deliverers. To put the climax to our affliction, it must be added that our cavalry was more numerous than the Cossacks; that it was supported by an artillery, the lightest, the bravest, the most formidable, that ever was mowed down by death."[1]

3. If Cossacks, mounted on ponies, and wretchedly armed, could thus master the French regulars, in spite of their artillery, what might not be expected from them if they were mounted on well-bred, powerful horses, and furnished with really good weapons? In that war their lances were notoriously bad: so much so, that there were French soldiers who received as many as twenty lance wounds, without being killed or seriously injured.[2]

4. The same contrast, is presented by our native irregular and our native regular cavalry in India. The first, acting on usage and instinct, and armed and mounted in their own oriental way, are nearly always effective in the battle, or the skirmish, or the reconnoissance; the second, cramped by our rules and regulations, and, as it were, denaturalised, are rarely of any service whatever. For a long series of years, the only native cavalry we kept in India, was the irregular. These corps were formed before our infantry Sepoys, and many and most important were the services they rendered to us. They were

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[1] Nolan. [2] *Ibid.*

always active, always rapid. The names of some of the most distinguished leaders of this brilliant light cavalry, are still revered in India. If their corps had been Europeanised, and turned into regulars, assuredly we never should have heard of them, as heroes.[1]

5. The Russian armies are always surrounded by swarms of Cossacks and Tartars, wild tribes whose customs give them great advantages in the service of out-posts. Inhabiting immense plains, sleeping in tents or under waggons, always on horseback, swimming across rivers, wandering about their deserts, they have but few wants; the Ukase which calls them to war, is for them a signal of pillage; often without pay, the conquered country, overrun by them in every direction, supplies them with every necessary. Almost useless in the day of battle, Cossacks, like tormenting insects, harass the troops on their march, and cut off the stragglers; or, prowling about at night, they endeavour to surprise the out-posts, a duty in which they have become very skilful, through their constant wars against the Turks and the tribes of the Caucasus.[2]

Mounted Rifles.

6. In the beginning, 'dragoons' were only mounted infantry; they should always have preserved that character. With this condition dragoons may, in a thousand circumstances, render immense service: in detachments, for surprises, in retrograde movements, and principally in pursuits. But it is necessary that, in conformity with their establishment, they should be mounted upon horses, too small to be put into line; otherwise, the aspirations and ambition of the colonels would soon change them into cavalry, and they would become at once bad infantry and bad cavalry.[3]

7. We are brought * to consider the use of one great addition to modern tactics springing from the American war, the only special creation, as it seems, which American generals have added, or rather restored to our stock, viz., bodies of mounted infantry. This arm, the original 'dragoon' of the 16th and 17th

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[1] Nolan. [2] Jervis. [3] Marmont.

centuries, was designed originally for the purpose of rapidly marching to occupy and defend distant positions, or of out-manœuvring the enemy by moving swiftly to his flank a part of the troops apparently engaged on his front. In such a mode did Johnston, Bragg, and Sherman chiefly employ their horse. By it also Sheridan (on his final junction with Grant in the Spring) bringing up and dismounting suddenly 9000 additional men on the extreme right of the Petersburg defences, outnumbered the besieged by the free use of this reinforcement, turned the detached work at first stoutly held by the troops of Anderson, won the battle of Five Forks, and finished the siege at a blow.[1]

8. The natural and physical features of the country (on the continent of America), rendered it impossible to employ cavalry in the same manner, and according to the same rules as are followed in the mounted forces of European nations. A new system of tactics suited to the time and applicable to the locality, was instinctively adopted and employed during the war by both parties.[2]

9. Now that fire-arms are so much more deadly than heretofore, so much the greater advantage will be derived from the employment of mounted men trained to fight on foot with these new weapons. Numberless examples can be adduced to show the wonderful advantages to be derived from the use of a force of this nature, able to act on any kind of ground, able to ride round and beyond the enemy's infantry, to cut it off in the retreat, to destroy the communications, seize its trains, and burn the bridges in its rear.[3]

10. * * It is certainly an advantage to have several battalions of mounted infantry, who can anticipate an enemy at a defile, defend it in retreat or scour a wood; but to make cavalry out of foot soldiers, or a soldier who is equally good on horse or on foot, is very difficult.[4]

11. The services performed by the dragoons, or mounted rifles, were very valuable all through the Confederate war for independence. And without doubt this force was far more available and useful, as well as suitable to the natural features of the country, than regular cavalry would have been.[5]

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[1] Edinburgh Review. [2] Denison. [3] *Ibid.* [4] Jomini, Chap. VII., Art. 45.
[5] Denison.

12. At Sailor's Creek, in 1865, during the pursuit of Lee's army from Richmond by the Federal forces, Sheridan came upon a strong rear guard, some 8000 in number, under the command of the Confederate General Ewell. Sheridan attacked the column on its flank before it reached the stream, and sending on three divisions of his dragoons, they crossed Sailor's Creek before Ewell, formed up on the high ground on the far side of the creek, dismounted, and, with their repeating fire, held the whole of the Confederate column in check until other bodies of the Federal army coming up, Ewell was obliged to surrender his whole command, after desperate fighting in attempting to break through the lines of dismounted cavalry, who checked his march.[1]

13. In the Pyrenees, at the first battle of Sauroren, while the battle was being fought on the height, the French cavalry beyond the Guy river, passed a rivulet, and with a fire of carbines. forced the 10th Hussars to yield some rocky ground on Picton's right, but the 18th Hussars having better fire-arms than the 10th, renewed the combat, killed two officers, and finally drove the French over the rivulet again.[2]

14. A body of cavalry, forming the rear detachment of the rear guard, may have to defend a bridge, a defile, or a barricade; whilst the remainder of the rear guard continues its retreat: in such a case, part of the men will have to dismount, and keep back the enemy with the fire of their carbines; and as soon as they consider the rear guard in safety, they remount and rapidly join it. In like manner, an advance guard can prevent a retreating enemy from destroying a bridge, or making preparations for defence at the head of a defile; its fire will either stop these operations, or delay them, until the infantry comes up. In this manner, the French dragoons, having dismounted, prevented the British in the retreat to Corunna, 1808, from blowing up the bridges of Puente Ferreira and Berleira.[3]

15. "The Cossacks of the Don, during great part of the last war against the French, were at that time but little accustomed to the use of fire-arms Whilst advancing into Western Europe the advantages of fire-arms became apparent; more particularly when acting in intersected

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[1] Denison. [2] Napier, Vol. VI. [3] Jervis.

and difficult ground: and the Cossacks managed to arm themselves with French infantry-muskets which they picked up on the field. Then originated amongst them the practice of dismounting by turns where the ground was favourable, and thus engaging the enemy in skirmishing order. I have myself seen them in this way beat cavalry very superior to them in numbers, and infantry also, when either the cavalry or the infantry attempted to attack them singly. In such cases the infantry soldiers opposed to them were afraid of the mounted men, who stuck close to their dismounted comrades with the led horses; and these dismounted men were ready to jump into the saddle at any moment, and rush upon the enemy, if they gave way or were driven from their cover."†

16. * * * All experience has shown that cavalry who are habituated to rely on their fire-arms, are apt to lose their distinctive characteristics of promptitude, impulsion, and resolution in attack; and it would probably be impossible, by any amount of training, to combine such opposite functions in the same troops. By establishing mounted riflemen as a separate arm of the service, men and horses of a size which, though admirably suited for rapid and sustained movements, is deficient in the power and weight that tell so formidably in the charge, might be turned to excellent account. On these troops might properly devolve the business of reconnoitring, of heading the advanced guards, of seizing defiles, and of surrounding the columns on the march with men peculiarly qualified to pick up and convey intelligence, to fight on any ground, and to retreat rapidly. Joining these functions to those already indicated, it is obvious that such a force, far less expensive than cavalry, would possess unusual opportunities for brilliant achievement. On the other hand, the regular cavalry, spared in great measure the harassing duties which fritter away its strength, would be preserved intact for the day of battle.[1]

17. To sum up, in a few words, the special effect that the novel organization of mounted riflemen, 'at the close of the American Civil War,' had in securing the great results of this brief, but momentous campaign.

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† (H. V. Ganzauge, 2nd Regiment of Prussian Lancers of the Guard, a distinguished cavalry officer). Nolan.

[1] Hamley, Part VI., Chap. V.

(1) On March 31st, the first day of the battle of Five Forks, their double capacity enabled them to hold their ground *unsupported;* to check the tide of defeat, and turn it into victory for the Federals.

(2) On April 1st, their double organization mainly contributed to the success of Sheridan's skilful feint; the result of which isolated the remains of 15,000 men from Petersburg, and thus robbed Lee of one-third of his strength at one blow.

(3) On April 6th, they overtook Lee at Sailor's Creek, and detained him till their own infantry came up in sufficient force to overwhelm his rear guard.

(4) On the same day, they turned his force off its line of retreat, and kept it surrounded near Appomattox Court House, till the mass of Grant's army came up and left him on the 9th, no alternative but surrender. In short, their double capacity of infantry and cavalry action intercepted the retreat at every point, and thus completely frustrated Lee's hope of gaining Lynchburg, retiring to the hills, and there, united to General Joseph Johnston's army, prolonging the struggle through another year. The 'Mounted Rifle' plan of fighting, first devised by the Southern Guerilla, John Morgan, in 1861, had thus recoiled upon the South with tenfold effect. Improved upon by experience, and lavishly supplied by the almost boundless resources of the North, in men, arms, and horses, it became, more than any one thing else, the weapon that gave the Confederacy its death blow.[1] * *

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[1] Havelock.

CHAPTER III.

ARTILLERY.

Artillery is an arm equally formidable, both in the offensive and defensive.

JOMINI.

1. The great size of the battle-field will necessitate very scientific combinations, and require that constant communication be kept up between corps far away from one another. The general of artillery will therefore be no longer a man with only special knowledge; specialities tend to disappear before this new system of tactics, on so much grander a scale and with combinations so much more exact than the old.[1]

2. One of the surest means of using the artillery to the best advantage, is to place in command of it a general, who is at once a good strategist and tactician. This chief should be authorized to dispose not only of the reserve artillery, but also of half the pieces attached to the different corps or divisions of the army. He should also consult with the commanding general as to the moment and place of concentration of the mass of his artillery, in order to contribute most to a successful issue of the day, and he should never take the responsibility of thus massing his artillery, without previous orders from the commanding general.[2]

3. A commandant of artillery should understand well the general principles of each branch of the service, since he is called upon to supply arms and ammunition to the different corps of which it is composed. His correspondence with the commanding officers of artillery, at the advanced posts, should put him in possession of all the movements of the army; and the disposition and management of the great park of artillery should depend upon this information.[3]

4 "The dispositions made by Napoleon's celebrated general of artillery 'Baron Alexander de Senarmont,' as regards its independent action, are worthy of notice."

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[1] Ambert. [2] Jomini, Chap. VII., Art. 46. [3] Napoleon.

General Senarmont lost his life at the siege of Cadiz in October, 1810, whilst inspecting a new battery, he was struck by an 8-inch shell, and immediately expired, at the age of 41 years.

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The following account of him, is given in a work by Commandant of Artillery Mazé, entitled, Artillerie de Campagne, en France.

"This arm (the Artillery) became more manageable, was required to become more available, and to act with more independence. Its reserves better distributed, permitted it to enter the action at the critical moment. Its sphere of action increased, but it still hesitated to profit by all its advantages. Considered so long as a purely accessory arm, it remained ignorant of what it could do by itself. It required a skilful man, and one gifted with military genius, to draw the Artillery into the new and glorious sphere which it ought to fill. This man was Senarmont. The bold manner in which he employed his artillery at Friedland, and the great results which were the consequence, astonished even Napoleon. And from this epoch the Emperor considered Artillery as being capable of being employed independently, and even in certain cases to obtain a particular end as a principal arm. We need only cite for example the great battery at Wagram, and the skilful manœuvres of General Drouot, at Leipsig, Hanau, &c. At the critical moment of the battle of Wagram, the want of a vigorous effort on the part of the Artillery, recalled to Napoleon the bold manœuvres at Friedland. 'Ah, if I had but Senarmont here,' cried he. What could be higher praise than this involuntary remembrance."[1]

5. The proportion of field artillery to the other arms, ought to vary according to circumstances. The nature of the country to operate in, the composition and qualities of the troops to contend against, and the object of the war, all bear upon the number of pieces.[2]

6. The number of guns proper for a given war is * limited, by reason of the expense and embarrassment of transporting a surplus of *matériel;* such an embarrassment indeed as might, in marches, more than counterbalance, in disadvantages, the advantages which might be expected of them at the moment of action. Experience has demonstrated that the maximum should be four pieces for 1000 men, a

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[1] Senarmont. [2] Saunier.

proportion moreover which will soon be found to have been exceeded after a few months of campaign; for the *matériel* is not subjected to the same causes of diminution as the infantry and cavalry, and the *personnel* of the artillery, so small in numbers, is always easily maintained complete.[1]

7. * * Both at Austerlitz and at Solferino, the beaten armies brought to the field a great preponderance of artillery, a large part of which took no part in the engagement. The truth is, that the huge trains which followed their columns were too unwieldy to be arrayed. * * * * Frederick brought three guns per thousand men to the field with his greater armies, and increased that proportion considerably as his infantry decreased in numbers. An army of 60,000 might well be accompanied by 180 guns; a corps of 30,000 by 100 guns.[2]

8. 'In the invasion of Bohemia, in 1866, the proportion of guns to men in the three Prussian armies, consisted as follows;' The Elbe army, * * about 40,000 men and 135 guns. The army in the centre, called the 1st army, commanded by Prince Frederick Charles, numbered 81,000 men and 270 guns. * * * The army on the left, called the 2nd army, was separated by a wide interval from the centre; it was commanded by the Crown Prince, and contained 100,000 men and 360 guns.

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The great quantity of artillery which was attached to both armies, 'Austrian and Prussian,' was a noteworthy feature of the war, and it was employed in a manner which shows that this arm is even more than ever relied on for supporting and covering the movements of other troops; consequently its mobility, or facility of movement, is also more than ever important.[3]

9. Artillery may be classed, under the several heads of field artillery (including artillery of position), siege artillery, and artillery for the armament of garrisons, fortresses, and coast defences; its equipment is a combination of men, *matériel*, and horses necessary for these services.[4]

The proportion of guns to the other arms, in the respective armies during the Italian campaign of 1859, was as follows:—

French	288	guns to	183,000	men.
Sardinians ..	90	,,	71,400	,,
Austrians	816	,,	230,000	,,

Lieut.-Colonel Miller.

[1] Marmont. [2] Hamley, Part VI., Chap. V. [3] Lieut.-Colonel Miller. [4] Owen.

10. Field artillery, that is to say, the artillery which is intended to accompany an army for operations in the field, may be divided into four separate kinds of batteries, viz.:—

Horse artillery batteries.

Field batteries.

Position artillery batteries.

Mountain artillery batteries.[1]

11. It is well known, that the horse artillery was first established in the year 1759, in the camp at Landshut, as a brigade of ten light 6-prs.; this is specially deserving of notice, as the introduction of this arm in every instance during the Seven Years' War failed, a period at which we once more resolved on the adoption of large calibres; and it turned out that the great king (Frederick) was eventually destined to attain in a novel manner his object of producing greater mobility and capacity for manœuvre, an object which he fruitlessly aimed at with the foot artillery. It is clear that the new creation was approved of by the King; for, though it was twice destroyed, at Künersdorf and Maxen, it was reorganized a third time in the year 1760, having six light 6-pounders and two 7-pounder howitzers.[2]

12. The unit for battle, in the artillery, is the battery. It is composed of six or eight pieces, always marching together, with their munitions, and placed under the same command. It is to the artillery, what the battalion is to the infantry, and the squadron to the cavalry. This corps should then be homogeneous and compact; the elements which compose it should have the same spirit, and the habit of being together. Now, there are three distinct elements: the *matériel*, or arm properly so called, those who use it, and those who transport it. If these elements do not agree, the artillery is imperfect. The first merit of artillery—after the courage of the gunners and the exactness of their aim—is its mobility. It is thus seen how important is the management of the horses, provided to draw the cannon.[3]

13. The field batteries, form the great bulk of the artillery which accompanies an army for active operations, and they are especially

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[1] Owen.

[2] Taubert, Chap. I., Sect. II.

[3] Marmont.

suitable for manœuvring with infantry, although by mounting the gunners on the carriages, they can move with sufficient rapidity to keep up with cavalry. They are however, usually required to remain in one position on the field for some time, at least in well contested actions, and in taking up fresh ground need not generally go beyond an ordinary trot; in short and decisive affairs, in the retreat of a force, &c., rapidity of movement will be of the greatest value in field batteries, especially if the number of horse artillery guns be small.[1]

14. Field artillery, is intended to follow the troops in all their movements, and to arrive promptly at a prescribed point, to crush the enemy. To this end we need a light material, of easy transport, and very easy of movement, so that no obstacle of ground can arrest its progress.[2]

15. Field batteries were not organized as at present until the beginning of this century, and after the formation of horse artillery. Previous to this their organization and equipment was very defective, the pieces were too light, they were mounted on badly made carriages drawn by horses in single teams, the drivers were on foot, and provided with large whips like ordinary carters, and the ammunition was carried in wooden boxes.[3]

16. Field (mounted) artillery has been introduced and is found well suited for almost every nature of service. Less expensive than horse artillery, it is almost as rapid in its manœuvres: it is less easily thrown into confusion, and the gunners are better able to assist the drivers in moments of difficulty.[4]

17. Considering the progress made by artillery in mobility and range, late French writers of authority assert, that to associate it intimately in future with infantry would fetter its powers and diminish its utility. Great effects may be produced by the action of large masses, which, detaching themselves from the line of battle, may suddenly concentrate on its front or flanks. To protect the swift and daring movements of these great batteries, great masses of cavalry must follow and support them, drawing off in the plains, but coming closer in sheltered ground. Meanwhile the artillery of divisions will be reduced to the minimum necessary for the march and the protection of their

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[1] Owen. [2] Marmont. [3] Owen. [4] Ambert.

front. This idea was executed in the campaign of 1859; for, both at Magenta and at Solferino, great batteries of 40 guns were drawn from the divisions and reserves, and manœuvred under the protection of masses of cavalry.[1]

18. At Königgrätz, the reserve artillery of Prince Frederick Charles was sent a little distance up the Bistritz, in order to bring a fire against the flank of the Sadowa wood, to search out the defenders, and if possible to dismount the guns in the batteries in front of Lipa.[2] *

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19. "At Solferino, during the operations in the centre," four batteries of 24 guns, were sent to the front, and replied to a heavy artillery fire opened by the Austrians, with a most decided advantage. Whilst this artillery combat was going on, Generals Partouneaux and Des Vaux arrived with their two divisions of cavalry; they were placed in rear of the right. The accompanying horse artillery came into action, and completed the success of the batteries by taking the enemy's guns obliquely. The cavalry also made charges, in one of which 800 infantry were driven back on the French skirmishers, who made them prisoners.[3]

20. * * At Königgrätz, a report was brought to General Mutius of the Crown Prince's army on the morning of the junction of that army with that of Prince Frederick Charles, that it was urgently desirable that he should send some artillery as quickly as possible to support Franzecky's division. Four batteries immediately pushed forward at a trot, covered by the 4th Regiment of Hussars, crossed the Trotinka at Luzan, and at half-past eleven opened upon the Austrian artillery stationed on the east of Horenowes.[4] * * *

21. 'At the Austrian camp of Brück, in 1868.'—The positions were on all occasions excellent; to be accounted for in a great degree by the independent and unfettered command of the captain, who usually rode considerably ahead of the battery, and reconnoitred the whole ground near him. The ranges were very long occasionally, even up to 4500 yards. The batteries never formed up with the infantry, but were massed on positions to cover advance or retreat, or to break an enemy's

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[1] Hamley, Part VI., Chap. V.

[2] Hozier, Vol. I.

[3] Lieut.-Colonel Miller.

[4] Hozier, Vol. I.

line. * * No attention was paid to dressing guns in action, or the intervals between the carriages; but the guns were most carefully laid, the men being interrogated by the officers &c., as to what they were firing at.[1]

22. Of all the difficulties that now beset the path of war-ministers and commanders-in-chief none is greater than this, "where to find a general who knows how to use his artillery." The French have made up their minds that in the wars of the future field artillery must not be too intimately associated with infantry. It is perfectly clear that a battalion in line or even skirmishers will soon destroy the gunners, or, at least, cripple the teams of artillery once within their practical range. But the effect of artillery fire is now-a-days almost as great at 1000 yards as it is at 200. There can, therefore, be no possible object in bringing up the guns in line with the foot soldiers; for where the action of the one begins that of the other terminates, and, on the other hand, a heavy artillery fire concentrated upon troops at ranges from 1000 to 2000 yards will make their position almost untenable, unless they are sheltered behind earthworks. Divisional artillery should be let alone as far as possible by divisional commanders. The duty of captains of batteries is to take up such positions as will enable the guns to be scattered but their fire to be convergent. And the extent of range now possible for field guns limits very considerably the necessity for their losing time by movement. The commander-in-chief of the army, should always hold in reserve masses of cavalry and artillery to be employed as the necessity of the moment may dictate. But to the end that field artillery should be able to act readily when called upon, it is needful that sufficient mobility should be imparted to it. There is no reason why field artillery should approach so nearly to horse artillery as to accompany the manœuvres of cavalry at a gallop; but, on the other hand, it is absolutely necessary that it should be able to move distances of a mile or so at a smart trot without leaving the gunners toiling breathless behind. This is no overdrawn supposition. Such a state of things actually occurred at the Alma, where the officers of a field battery which was called upon to make a moderately rapid advance found themselves in the presence of the enemy without their men except two

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[1] Foreign Tour.

gunners to each piece. Instead of superintending, watching the movements of the enemy, and directing the labours of their men, the officers had to dismount and actually assist in the loading and firing, which was all the slower because the pieces were undermanned. They did their duty, but at the sacrifice of valuable lives.[1]

23. The full amount of protection and support to be obtained from field batteries of light guns would appear to depend upon their means of mobility not being too limited, permitting these guns to be moved when circumstances require them from position to position within proper limits and with their escorts, at an increased rate of manœuvre over the battalions of infantry, that is at a *trot*, and to be capable of opening fire at an early moment instead of proceeding at the ordinary pace of infantry. Batteries of light field guns usually composing the greater proportion of artillery employed in the field, and being organized on an economical establishment of horses, it becomes of weighty consideration when conducting a campaign to have their mobility and celerity of movement fully developed, thereby increasing the utility of the bulk of the artillery.[2]

24. To gain from mobility * its greatest effect, field batteries should, to a certain extent, be converted into horse artillery, by which the greatest possible rapidity of manœuvre would be attained; batteries would constantly shift their positions, so as always to take the line diagonally or in flank, and by rapid retreat would baffle a counter-attack. Rifled guns of larger calibre than those of the field-batteries, corresponding to those formerly called guns of position, can now easily follow the march of troops, and take part in the line of battle. Their value in protecting refused portions of the line from counter-attack, covering fixed points,—such as bridges and defiles,—enfilading distant parts of the hostile line, and silencing troublesome batteries, is so great, that immense advantages would in many cases be gained by increasing their numbers.[3]

25. The field-battery equipment of the Prussian army is light, and adapted for rapid movement over long distances; six men can be carried with the gun, independently of the waggon, viz.: a mounted No. 1, three men on the limber, and two on axle-tree seats; these seats are

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[1] Times, 1st Nov., 1869. [2] F.J.S. [3] Hamley, Part VI. Chap. V.

safe and comfortable; they have cylindrical springs of india-rubber, which it is said wear very well. * * * Lightness and capability of rapid movement, is more than ever necessary now with field batteries; this follows in consequence of the increased efficiency of the guns at long range. At the manœuvres, "Prussian Divisional in the Rhine Province, 1868," this could be readily appreciated; the country being one of wide swelling, rolling hills,—the features on a grand scale—the artillery was often obliged to remain a long way behind, to cover advances of the infantry, and then would be compelled to move rapidly for a long distance to the front again.[1]

26. The Austrians do not keep up any horse artillery proper. When a battery is attached to a brigade of cavalry, the number of horses in each gun is increased to six. Six men are carried on the two seats in the front part of the carriage, the seventh rides on a saddle on the trail.[2]

27. Field artillery to be really effective, should combine accuracy and quickness of fire with considerable celerity of movement; the former of these will depend on the instruction and general efficiency of the officers and men composing the battery, as well as on the nature of the guns employed, and the latter will be secured by having the carriages of suitable construction and well horsed, for otherwise artillery becomes a troublesome and sometimes even a useless appendage to an army.[3]

28. The general rule runs thus: the fire should be slow as long as the enemy is at a distance, and the probability of a hit small: quicker when the enemy comes nearer, when the distances can be judged more accurately, and when its effect increases; and quicker with canister shot at the critical moments, shortly before and after attacks are made with the steel, when our battalions advance to the attack with the bayonet, or the squadrons to the charge, when the enemy's troops advance to the attack of ours, when they are delayed by obstacles of ground, or when they expose their flank.[4]

29. The Armstrong 12-pr. can fire about two rounds per minute, with approximate accuracy in laying. When great precision in laying is not required, a smooth-bored gun can fire two rounds of solid shot in a minute, or three rounds of case, which require less time in laying.

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[1] W.H.G. [2] Saunier. [3] Owen. [4] Taubert, Chap. III., Sect. XII.

Each gun might fire nine rounds of solid shot upon the cavalry 'approaching from 1000 yards,' during the first 400 yards; one round of solid and two of case shot during the next 400, and two rounds of case during the last 200; making a total from each gun of ten rounds of solid shot, and four of case. * * * On opening fire, if the distance of the enemy be not known, it is better to fire rather short of, than over the object.* This remark especially applies to rifled guns, and great care should be taken when an enemy is at close quarters to depress the guns sufficiently, so as if possible to burst the shells just in his front.[1]

Reserve Artillery.

30. Batteries of position are designed for the defence of posts, intrenched camps, lines, &c., and for the occupation of important positions on the field of battle. They may also be used as a means of connecting the different forts and batteries which may be situated on any coast. When used in offensive operations, this species of artillery becomes artillery of reserve, to be brought forward at critical periods of the attack.[2]

31. All field artillery may be said to have been artillery of position previous to the Seven Years' War, for with the exception of a few isolated cases, it possessed little mobility, and usually remained during an action in one position without attempting to manœuvre; it generally opened an engagement, and almost invariably became the prey of the victor. After the field artillery was lightened, and rendered capable of rapid movements, artillery of position then became reserve artillery.[3]

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* The Dartmoor Special Committee held in 1869, were of opinion,—'that the plan of firing a trial shot to ascertain the range will, with the present guns, not prove sufficiently accurate to obviate the necessity of carrying an instrument specially devised for the purpose. They base their opinion upon the belief that, although on tolerably level and open ground and at a moderate distance, the burst of a percussion shell on graze will probably be seen, and afford an approximate estimate of the graze; upon enclosed and broken ground, or at a long range, the probability is that the graze of the trial shot would not be seen from the guns, or if seen, the configuration of the ground might cause the trial shot to give an erroneous idea of it. This was particularly noticed during some of the experiments at Dartmoor. * * With Nolan's range-finder, the gun detachments were enabled to measure the range with sufficient accuracy in about 1¼ minutes.' F.J.S.

[1] Hand-Book. [2] Owen. [3] *Ibid.*

32. Reserve batteries are usually placed in the third line, with the reserves of the other arms, and formed in column, with a front of one or two batteries, sheltered from fire.[1]

33. How important an effect the sudden appearance of a proportionately small reserve of artillery accompanied by fresh troops may have, was demonstrated at the battle of Marengo, on 14th June, 1800; in this action the twelve pieces of Boudet's division, which had only just arrived, checked the victorious career of the Austrians by their unexpected and effective fire; they became, too, the supporting point of all the manœuvres which turned the fate of the action. It was the last barrier of the already beaten French army; by it the French commander-in-chief supported his discomfited and exhausted divisions; and from it, and the impetuous attack of fresh forces, resulted the change which snatched the blood-bought victory from the Austrians.[2]

34. 'Reserves, intended for movement, ought to be able to move with facility, and for artillery which often has to take post at long distances, horse artillery should be employed.'[3]

35. It is, * proper to have horse artillery in reserve, which may be carried as rapidly as possible to any threatened point. General Benningsen had great cause for self congratulation at Eylau because he had fifty light guns in reserve; for they had a powerful influence in enabling him to recover himself when his line had been broken through between the centre and the left.[4]

36. The battle of Lutzen was fought on the 2nd May, 1813, between the Allies and the French, ending in the retreat of the former. * * * The Allies had 438 guns, while the French had but 236, so that the victory on the side of the latter may be considered to be due to the perfect knowledge possessed by Napoleon of the application of artillery in the field, and especially as regarded the employment of the reserves. • • • • • •

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The allied army employed in this engagement an immense number of guns, nearly seven to 1000 men, but instead of keeping a strong reserve ready to act with effect upon an emergency, they appear to have placed their batteries between the infantry columns, and allowed them to scatter their fire. Fifty pieces were however in position at Lisdorf, and if brought up to oppose the last French attack on Kaya, the battle ought to have been gained by the allies, notwithstanding the preponderance of the French numbers.[1]

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[1] Saunier. [2] Taubert, Chap. V., Sect. XXIX. [3] (Marmont), Ambert.
[4] Jomini, Chap. VII., Art. 43.

Positions for Guns.

37. In choosing a position upon the field for artillery, the following principles should be chiefly borne in mind, viz.: that the guns should command not only the approaches to the weakest points of the position, but also if practicable, the whole of the ground within their range; that they should not inconvenience the manœuvres of the troops they support, and that they should be as far removed, as circumstances will permit, out of the range of any place which might afford a shelter for the enemy's infantry, and from whence the latter could harass the gunners. If this, however, be impracticable, one or more guns must be told off to keep down the enemy's fire. When guns are placed to defend a position, to protect troops in passing a river, &c., it is always advisable that the batteries should be at some distance from each other, but should at the same time be able to concentrate and cross their fire on the ground in front.[2]

38. The officer's first business, after putting a gun in position, will be to ascertain, by actual measurement, the distance of every well marked object within range; next to mask and protect his guns and men, by ingenious use of whatever means are at hand.[3]

39. The natural cover, which ground almost everywhere affords, and which a practised glance alone can discover and turn to account, is either calculated to catch or turn off the enemy's projectiles, such as swamps, meadows, ditches, heights, slight unevennesses and ruts, low dikes, ledges of earth, hollow ways, &c., or of a nature to hide the pieces from the enemy's sight, and make it difficult for him to lay his pieces and to estimate the distance, such as hedges, thickets, fields of corn, deep heather, &c. Heights which slope gently towards the enemy afford the best cover, by withdrawing the pieces behind the ridge so far back that the levelled gun is alone seen above it.[4]

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[1] Owen. [2] *Ibid.* [3] Hand-Book. [4] Taubert, Chap. III., Sect. X.

40. When guns are in position on the brow of a hill, they should be retired from it as far as they can without losing the command; the more they are retired, the more the men will be covered. If it be necessary, that they should be placed close to the edge, it should not be done till the firing is about to commence.[1]

41. The position in advance of the front of the other troops has the disadvantage of exposing a double object to the enemy's projectiles; it entails, too, in the attack the necessity of the other troops breaking through the intervals of the pieces, thereby masking their fire sooner than they otherwise would. The position in front of the rest of the troops is especially hazardous for horse artillery when allied to cavalry, because the latter is compelled to pass through the artillery both in advance and retreat, and the artillery in an unsuccessful attack, may happen to be ridden over by friend and foe.[2]

42. Artillery is an arm equally formidable both in the offensive and defensive. As an offensive means, a great battery well managed may break an enemy's line, throw it into confusion, and prepare the way for the troops that are to make an assault. As a defensive means, it doubles the strength of a position, not only on account of the material injury it inflicts upon his troops, but also by greatly increasing the peril of approaching near, and specially within the range of grape. It is no less important in the attack and defence of fortified places or intrenched camps; for it is one of the main reliances in modern systems of fortification.[3]

43. In a battle, each arm, according to circumstances, takes the principal part. In critical moments, when both sides have the same chances of success, or when the efforts of the infantry and cavalry have not led to any result, the artillery takes the lead and gives the decisive blow; but, more frequently, its work, always important, is secondary and consists in affording support by its fire, to other arms. It is the special duty of the batteries of divisions, who have no other tactics; to follow and support with judgment the movements of the troops to which they are attached.[4]

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[1] Hand-Book.

[2] Taubert, Chap. III., Sect. X.

[3] Jomini, Chap. VII., Art. 46.

[4] Saunier.

44. * * * If the artillery is to act upon an isolated point; the infantry and cavalry troops designed to protect it and assure its safety, must be subordinate to it in all their movements.[1]

45. To post cannon to advantage, with due regard to their defence and the means of withdrawing them, is perhaps the most anxious part of a general's duty, in occupying or attacking a position. Its difficulty is ill understood save by artillery officers, or those well trained in tactics. Hence a very frequent source of error as to the strength of positions, and one especially made as regards our late example—Solferino. The hill round the tower has been described as of great strength. It was not really so, since its crest was too narrow for the proper use of the Austrian guns, and the access to it through steep lanes so bad as to make officers unwilling to commit themselves to a defence which they feared would end (as it partly did in fact), in their finding their retreat intercepted. Yet the change introduced by the Great Napoleon of massing guns for attack is acknowledged by all to be in the right direction. A concentrated fire is proved not only to do more proportionate damage to the enemy, but to have the effect of protecting the batteries themselves. Colonel Fremantle has taken pains to show that a similar process to the French Emperor's was forced by experience on the artillerists of Lee in the Virginian campaigns. The improved lightness of modern carriages gives marked facilities for such combination, as the superior range now attained permits the front of the army to be swept effectually, and the enemy's columns to be taken in flank—the most formidable direction which can be used—without that subdivision of the batteries heretofore in vogue. This tendency to mass guns for a decisive stroke in battle, with the increased means of transport now available, is a sufficient guarantee that the proportion of artillery will be fully maintained, though it is not probable that late improvements will cause it to be increased.[2]

46. In two respects the fire of artillery is superior in degree to the fire of infantry: first, in the extent of its range; secondly, in the power of its projectiles. To exercise its full effects, it should—first, begin to fire at a range beyond that of small arms, without falling into the error, so frequently condemned by Frederick, of commencing its

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[1] Marmont.

[2] Edinburgh Review.

fire at impracticable ranges; secondly, it should so direct its fire on the opposing troops as to give full scope to the destructive power of the projectiles.[1]

47. Artillery fire is least effective, when the batteries stand exactly opposite to those of the enemy and on a base parallel to theirs, so that those of his shots that miss, pass through the intervals of the battery. Positions of guns, which are oblique to the enemy, or which can be taken in flank are faulty: should circumstances in action render the taking up of such a position compulsory for a short period, increasing the intervals is a method of lessening the losses much to be recommended. Artillery should not take up a position under the effective fire of the enemy's sharpshooters, unless the main object of the fight imperatively demands it. It should, generally speaking, keep at a distance from woods or the skirts of villages, hedges or ditches, which the enemy has occupied with infantry, in order to be out of the effective range of their fire-arms.[2] * *

48. The only formation for artillery in action is, of course, that of line. The leaving of intervals between the guns (nineteen yards) necessary for the limbering up of the pieces, enables a battery to sustain for a considerable time a *direct* fire from the enemy's artillery, which, from its weight and accuracy might appear destructive. But in gaining a direction oblique to the enemy's front, a line of guns will frequently be exposed to enfilade. A partial remedy for this in open ground, is to retire the guns in echelon to the exposed flank. The same order is applicable when numerous batteries are for a particular purpose concentrated on a part of the enemy's line.[3]

49. The concentration of artillery fire upon a single point of the enemy's position, * * may be accomplished by an oblique direction of each piece of a detachment of artillery, standing upon a base parallel to the enemy's position, or by placing two or more lines of pieces in oblique echelon.[4]

50. Artillery commences the action, in firing upon all points of the enemy's line. Scattered along the front of the line of battle, its fire keeps the enemy in uncertainty as to the real point of attack. It keeps the engagement at a distance beyond the reach of small arms; it covers

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[1] Hamley, Part VI., Chap. II.

[2] Taubert, Chap. III, Sect. X.

[3] Hamley, Part VI., Chap. II.

[4] Taubert, Chap. III., Sect. X.

the movements of other arms; it prepares for the action of cavalry and infantry; it supports offensive movements, protects the retreat and restores the combat; it facilitates the passage of rivers and aids powerfully in the attack and defence of villages, and of posts, and intrenched camps. When employed in a mass, it shatters the enemy's line and decides the contest. In this manner Napoleon employed his artillery in the great wars during the latter years of the Empire, when the armies had become considerably large.[1]

51. The choice of the object to be fired at must be determined by the particular purpose the artillery endeavours to effect, and should be changed with that purpose during the course of the action. In the beginning of an engagement, and when the pieces cannot yet contribute to their own defence, they direct their fire where the distance, ground, and position of the enemy hold out the greatest promise of effect. When the battle has advanced, and in decisive moments the objects to be fired at suggest themselves, and the pieces should then fire against those arms of the enemy whose resistance is most obstructive or advance most formidable. On the offensive, the fire is chiefly directed against the enemy's artillery, in order to divert their fire from the other troops, and to facilitate the advance of the latter; on the defensive, on the other hand, it is especially directed against the enemy's infantry or cavalry, to prevent their advance. In the last case should the artillery be plied by that of the enemy, it should not on that account be induced to divert itself from its object. A number of objects should not be chosen, for this leads to a reprehensible scattering of the fire, and produces no decided result; while the concentration of artillery fire upon a small space seldom fails of effecting the object in view, because relative loss is more decisive than absolute.[2]

Descriptions of Fire, employed.

52. The kind of fire and nature of projectile to be employed in the different cases which may present themselves upon the field of battle, depend on a variety of circumstances, such as the nature of the ground,

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[1] Saunier.

[2] Taubert, Chap. III., Sect. XII.

the formation of the enemy's troops, their distance, &c., and the effect that it is desirable to produce. In general, shot and shell are fired against troops *en masse* or in column, or when a line can be enfiladed or taken obliquely; case shot and shrapnel against troops dispersed or scattered, the former being used at short ranges up to about 300 yards, and the latter at the same ranges as those at which shot and shell are fired. * * * Case shot may be employed with advantage against troops at the distance before stated, and especially if there be no great exposure of the gunners to the fire of musketry from the flanks; if troops especially cavalry are advancing upon a battery within a very short distance, double charges of case fired from the guns will do very great execution, and for close quarters smooth-bored pieces would most probably have a great advantage over rifled guns. The use of case will, however, depend in a measure on the nature of the soil, as it is not nearly so effective on soft or marshy ground, as when the latter is hard and stony.[1]

53. Against a *deployed line*, whether marching by the front or by a flank, case shot, that is, grape, canister, and spherical case (sometimes called shrapnel), are most suitable; as these all scatter, right and left, to a considerable distance.

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Case shot, are *unsuitable against column*, as they consist of a number of small balls, which have not momentum enough to penetrate into it to any depth.

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A shot, on the other hand, comes shrieking and tearing its way through the entire column carrying destruction to the very rearmost ranks. The hesitation produced is not limited to the leading ranks, but extends throughout the column. Thus both the actual and the moral effect of ball on a close column, is much superior to that of grape or canister. At the bridge of Lodi, the Austrian gunners plied the French column with grape. If they had used round-shot instead, it is doubtful whether Buonaparte would have succeeded in carrying the bridge.[2]

54. When used against *breastworks of rails or logs of wood*, guns

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[1] Owen. [2] Lippitt.

should be fired with moderate or shattering charges; so as more surely to demolish them, and, at the same time, to increase the destructive effect of the fire, by scattering the splinters.[1]

55. Case shot produces its greatest effect against cavalry, taking into consideration both men and horses; it is less efficacious against infantry, and still less against artillery. This must be evident, when it is recollected that cavalry occupying a greater surface, and being much higher ought to be more exposed to its effects than infantry; and that the latter will suffer more from it than the artillery, the guns being separated from each other by considerable intervals. Case shot should be used with field guns up to 250 yards, with the heavy natures up to 500 yards. Shrapnel and segment shells are case shot extended, but they require skill on the part of those who use them, in order to combine the right elevation with the proper length of the fuze. Case shot has not much effect against troops drawn up behind an abatis, as the branches of trees intercept the balls. If the ground be unequal or covered with brushwood, soft, marshy, with deep ruts perpendicular to the line of fire, a great part of the balls will produce no effect; they will lodge.[2]

56. Large mortar shells, 13, 10, and 8-inch, are generally used in bombarding towns and works, and for these purposes, it is desirable that the shell should penetrate and then burst, the fuze being therefore bored, as it is technically termed, "long;" these shells are most useful in destroying, and setting fire to buildings and magazines, levelling earthworks, &c. The small mortar shells are generally fired against troops posted behind cover, and they should therefore be made to explode at the instant they reach the ground; if they penetrate into the ground, and then explode, the splinters will have little lateral range, and the destructive effect of the shells will be greatly decreased.[3]

57. High angle fire is intended to strike a horizontal and covered object, and is distinguished from the low angle fire by an extremely curved trajectory. The shell is intended to remain where it first strikes, and there explode. The explosive effect, is chiefly depended upon.

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The explosion of the shell, gives this nature of fire a marked superiority over low angle fire, requires the pieces to be served with calmness and an attentive observation of the hits and explosions. It must consequently only be used from safe positions, in which the battery can remain for a considerable length of time stationary.[1]

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[1] Lippitt. [2] Manual Artillery Exercises. [3] Owen.

58. The 5½-inch royal and 4⅖-inch Cœhorn mortars, will be found very useful in the attack of intrenched posts, on account of their portability, for which reason they can be employed in situations where it would be impossible to move guns. In India, they have been found very effective in the attack of hill forts, stockades, &c.[2]

Enfilade and Oblique Fire.

59. If the enemy advance in deployed lines, the batteries should endeavour to cross their fire in order to strike the lines obliquely. If guns can be so placed as to enfilade a line of troops, a most powerful effect is produced. When the enemy advance in columns, they may be battered in front. It is advantageous also to attack them obliquely, and especially in flank and reverse. The moral effect of a reverse fire upon a body of troops is inconceivable; and the best soldiers are generally put to flight by it. The fine movement of Ney on Preistitz at Bautzen, was neutralized by a few pieces of Kleist's artillery, which took his columns in flank, checked them, and decided the marshal to deviate from the excellent direction he was pursuing. A few pieces of light artillery, thrown at all hazards upon the enemy's flank, may produce most important results, far overbalancing the risks run.[3]

60. It has frequently happened, that batteries, placed in positions where they could use oblique fire, have greatly contributed towards winning a battle. At Marengo, the disorder, caused in Zach's column, by the artillery of Desaix, the whole of which suffered from the oblique fire, was amazing. At Ligny, Napoleon prepared the way for his attack on the Prussian centre, by using oblique fire. The fourth chapter of the battle of Austerlitz,* equally proves the importance of oblique fire. At Bautzen, Ney's movement upon Preistitz, was arrested by some light guns of Kleist, which took the French columns in flank.[4]

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* Baron Ambert, here refers to his work, 'Etudes Tactiques.' F.J.S.

[1] Taubert, Chap. III., Sect. XI. [2] Owen. [3] Jomini, Chap. VII., Art. 46.

[4] Ambert.

61. * * Improvements in artillery have given it greater *boldness*. Drawing nearer the general direction of the enemy's lines, it will take up positions suitable for oblique fire. Its extreme mobility will enable it to escape from attacks, and generally speaking it will have nothing further to fear than the fire of the enemy's guns. It is plain, that the great range of, and liberty accorded to the artillery, will extend the use of enfilade and oblique fire. In consequence of the great range of rifled guns, turning movements and diversions, on the field of battle, must be made with a wider circuit; in order that the effects of oblique and enfilade fire may be avoided.[1]

Massing Guns.

62. The engagement once begun, 'says Napoleon,' he who is able to bring suddenly and unknown to the enemy, upon the most important points *an unexpected number* of guns, is certain of success. This is the great secret of '*la grande tactique.*'

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The great range of artillery of the present day, makes it, more than ever necessary to seek with care for positions, whence its fire can be used within the greatest limits. It therefore seems probable that there will be a tendency to mass guns upon such positions, which appear most favourable.

"The part played by artillery in war," says Marshal Marmont, "has daily acquired more importance not only from its increase, but also on account of its great mobility, which permits of almost an unlimited combination of movements. There are however, limits to this mobility which enables us to assemble upon a given point a great number of guns."

These limits have been now withdrawn, so that it seems possible for artillery to assemble in enormous masses, at the most advantageous points. The massing of artillery upon the same part of a field of battle, often causes great difficulties in the deployments of batteries; sometimes the troops supporting the artillery are obstructed in their movements. At Wagram, for instance, the 100 field guns, forming the centre battery, were hardly able to perform the necessary movements for permitting the entrance into line of Macdonald's column.

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[1] Ambert.

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The mobility of guns of the present day, will enable the plans for bringing the artillery into action, to be made more rapidly and consequently with less risk. However, the batteries which first take up their position, must open fire quickly, in order to draw the attention of the enemy towards themselves, and enable the remaining batteries to take up their positions, with less difficulty and danger.[1]

63. Every period of an action may offer a favorable opportunity to bring 'guns massed' into use. At the opening to overcome the difficulties of a position by a superior force of artillery, and at the same time to protect the troops. During an action to give a favourable turn to the fight. At the close, either to overwhelm the enemy with all available strength, or to repulse him.

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The particular point at which they should be employed, is what is termed the key of the enemy's position, getting possession of which decides the contest; the choice of it is influenced by the position the line of retreat and the turn the fight may have taken.

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The strength of the artillery masses, is a matter of great importance. The mass should not be so unwieldy as to lose its capability of manœuvring, for success is not merely dependent upon the number of the pieces, but upon the order and precision with which they deploy. Two batteries should be considered as the minimum, and six as the maximum of an artillery mass.[2]

64. 'The artillery of reserve,' is able to be partly employed to strengthen weak points, or to move in a body, supported by troops on the wings, or in rear of the wings, to make a decisive blow. Sometimes with the same object, the batteries from several divisions are united, or the artillery of the nearest divisions are joined to a grand battery formed by the reserve artillery; but this employment of divisional artillery is

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[1] Ambert.

[2] Taubert, Chap. V., Sect. XXIX.

exceptional: it is better, that the batteries of divisions aid the movement of a mass of artillery by their fire, if their attention is not forcibly called to another point.[1]

Concentration of Fire.

65. An instance on a small scale, of the successful concentration of artillery was given at the battle of Talavera, where three British batteries were formed in a line oblique to some advancing French columns, so that a heavy fire was obtained on the flank of the columns, which were compelled to retire.[2]

66. 'At the battle of Solferino,' from the foot of the hills to Casa Nova, along M'Mahon's and part of Niel's line, the action was confined for some hours to artillery fire, with episodes of cavalry charges. M'Mahon reports twenty-four, Niel forty-two, guns engaged; horse artillery also took a part, and there must have been at least seventy-eight guns drawn up for action together; no wonder that the 1st Austrian corps fell back to San Cassiano without making any serious attack, and before it was entirely brought up. At one point, where it was necessary to withdraw an Austrian field battery out of fire on account of its being overmatched by being opposed to three French ones, an eye-witness describes the affair thus:—Mensdorf's cavalry, and a battery of horse artillery were ordered to advance and cover its retreat; they had hardly got within 1700 yards, when, of six guns, five were dismounted. Another battery was sent up; in one minute from starting, three were dismounted, and 500 horses were killed. In the meantime the artillery had been withdrawn.[3]

67. * * * Under the Republic and Empire, the offensive *rôle* of the artillery, in accordance with the tactics of the day, rapidly increased in importance. We find successful applications of it, at Friedland, Wagram and Hanau. This extreme boldness accorded to artillery, will in the future largely develope its *offensive powers*. Great mobility, constantly throwing out the enemy's calculation of distances, having become more than ever important, artillery will be able to take up good positions, without being seriously compromised.[4]

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[1] Saunier. [2] Owen. [3] Lieut.-Colonel Miller. [4] Ambert.

68. At the battle of Friedland, 14th June, 1807, the artillery of Victor's corps was commanded by General Senarmont. In a memoir of Senarmont, his own report as to the part played by the artillery of the divisions of the army forming the corps of Victor, and the concentrated *fire* of the batteries, is given; "General Victor, the commander-in-chief of the 1st corps, allowed during all this affair, the general commanding the artillery of that corps, to assume entire control of the movements of that arm after having communicated to him his designs.[*] Consequently, he (the General Senarmont) judged it desirable to divide all the artillery of the 1st corps with the exception of the six guns held in reserve, into two great batteries, * * right and left, each of fifteen guns. The corps occupied in *four* lines, the space between the ravine and on the left of the village of Porthenen and the wood of Sortlack. The left battery was carried to the front of Porthenen, having for its object to flank the left of the corps, by a cross-fire with that of the battery of the right; and to destroy, if possible, the enemy's batteries and especially his masses on this point. The battery of the right, at first established in front of the wood of Sortlack, gained, during the action, the extreme right of the sixth corps, just opposite to and at half cannon range from Friedland.

"The general of artillery moved, during the action from one battery to the other, directing their movements and commanding them in person, because of the wounds and absence of their commanding officers.

"The artillery arrived at 300 yards from the enemy, there fired one or two rounds, after which the guns, up to the end of the action, were kept constantly at 200 yards and at 120 yards and then fired nothing but case, till the enemy had effected his retreat, after an immense loss of men. Next day the pieces remained in position on the brink of the ravine on our left, and near the town."[1]

69. In the *précis* of the operations of his corps, Victor, speaking of Senarmont's artillery at Friedland, disposed in two grand batteries, says, "The general of artillery perceiving the terrible effect of his fire

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[*] It is generally admitted, that the withdrawal of the guns from the divisions to which they were attached, was contrary to the wishes of the divisional generals, and that they grumbled. F.J.S.

[1] Le General Marion.

and wishing to decide the enemy's retreat, gave the order to fire no more on the enemy's guns, equal in number to ours, and of which some took us obliquely. He advanced to within 120 yards of the Russian front, the two batteries *which had approached each other till they only formed one* battery, and from that moment they only fired case."*

70. The camp at Boulogne, was the first school of the tactics in mass, henceforward destined to be successfully practised on the field of battle, and the war of 1805 gave the first opportunity of bringing them into play. * * * * * *

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It is undeniable, that General Senarmont trod a new path in giving this example of the use of artillery masses, and that it is one worthy of being followed; it deserves to be remarked too, that he had not a reserve artillery awaiting his orders to be brought into use, but that he had at first to procure the means for this attack, by combining the divisional batteries of the first corps. * * * *

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The battle of Wagram, on the 6th July, 1809, affords another, though less successful but still magnificent, example of the employment of artillery in masses.[1]

71. 'Concentrating upon the same point,' has the advantage of taking the enemy's lines obliquely; it allows of cross-fire and affords intervals for the passage of troops about to attack. It was employed at Austerlitz by the batteries of the 4th corps and the twenty-four light guns of the guard. At Lutzen, the French directed against the villages of Gross-Gœrschen and Kaya, two batteries of seventy and thirty-two guns respectively. The cross-fire of these batteries made such a gap in the allied lines, as to decide the battle. The great range of guns at present will allow of their being able the better to obtain flank-fire relatively between them, and will thus increase their power of concentration. Suppose the batteries, *a, b, c, d,* placed at the same intervals, and armed with guns of the old class; the batteries, *A, B, C, D,* in the same positions but armed with rifled guns; *bo* and *do* representing the

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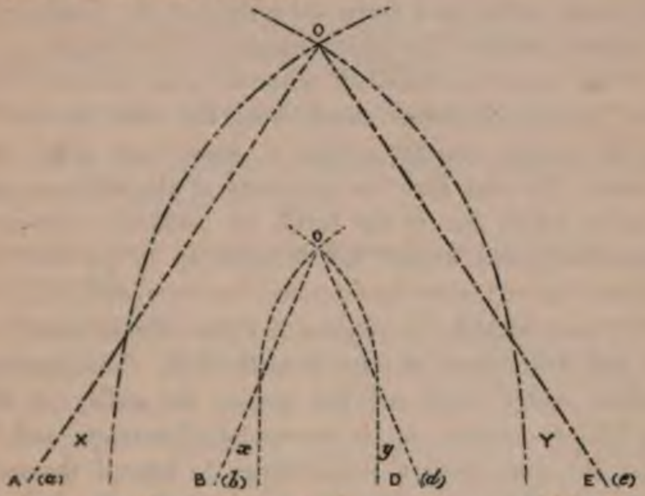
* Victor alludes to the allied cavalry forming to charge the batteries, in order to relieve the masses from their fearful fire. Senarmont changed front, and disposed of them after two rounds. F.J.S.

[1] Taubert, Chap V., Sect. XXIX.

greatest ranges of the old guns, and *BO*, *DO* those of the rifled pieces; we will then have the two zones *xoy*, *XoY*, which are to one another as the squares of the radii or ranges.



These two zones then represent, the areas upon which smooth-bore and rifled guns respectively, could concentrate their *fire*, consequently the *power* of concentration of each.[1] * * * * *

The effect produced by the fire of two English field guns, at the Alma.

72. At the battle of the Alma, the effect of the fire of the two English guns brought to the top of the knoll, is thus described by Kinglake, in his summary of the battle. * * * * * *

"Seeing the danger to which this condition of things was leading, and becoming for other reasons impatient, Lord Raglan determined to order the final advance of the English infantry without waiting any longer for the time when Canrobert and Prince Napoleon should be established on the plateau. So the English infantry went forward, and in a few minutes the battalions which followed Codrington had not only defeated one of the two heavy 'columns of attack' which marched down to assail them, but had stormed and carried the Great Redoubt. From that moment the hill-sides on the Alma were no longer a fortified position; but they were still a battle-field, and a battle-field on which, for a time, the combatants were destined to meet with checkered fortune; for, not having been supported at the right minute, and being encompassed by great organized numbers, Codrington's disordered force was made to fall back under the weight of the Vladimir column; and its retreat involved the centre battalion of the brigade of Guards. Nearly at the same time Kiriakoff, with his 'great column of the eight battalions,' pushed Canrobert down from the crest he had got to, obliging or causing him for a time to hang back under the cover of the steep. At that time the prospects of the allies were overcast. But then the whole face of the battle was suddenly changed by the two guns which Lord Raglan had brought up to the knoll; for not only did their fire extirpate the Causeway batteries, and so lay open the Pass, but it tore through the columns of Prince Mentschikoff's infantry reserves, and drove them at once from the field. This discomfiture of the Russian centre could not but govern the policy of Kiriakoff, obliging him to conform to its movement of retreat; and he must have been the more ready to acknowledge to himself the necessity of the step he was taking, since by this time he had suffered the disaster which was inflicted upon his great 'column of the eight battalions' by the French artillery."[1] * * * * *

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[1] Ambert.

Siege Artillery.

73. The objects and equipments of siege artillery are very different from those of artillery for service in the field, the quantity and variety of the *matériel* required being very much greater, as well as the time necessary for its collection. * * * * * * *
The purposes for which artillery is employed in sieges, may be enumerated as follows:

(1) To keep down the fire of the besieged, and protect the besieger's works, thus enabling him to make his approaches to the fortress with greater facility.

(2) To defend the batteries and parallels against sorties, &c.

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[1] Kinglake, Vol. II., Chap. XVI.

(3) To drive from their lodgments any troops which may hinder the progress of the parallels or batteries, by harassing the working parties, and guards of the trenches.

(4) To ruin the defences of the besieged, and to prevent his repairing the damages which they may have received.

(5) To destroy the enemy's stores and magazines.

(6) To form such breaches in the revetments as may be necessary to admit the assaulting columns; and

(7) To cover and support the movements of the assaulting columns on the day of attack.[1]

74. No precise rules can be laid down, as to the natures of ordnance or the number of pieces best suited for a siege equipment; much depends on the class and position of the fortress to be attacked, and the facility of transport afforded by the country in which the operations are to be carried on. In countries where water transport abounds, little difficulty is experienced in conveying the largest ordnance. Thirty pieces of ordnance, viz.: ten 8-inch guns of 52 cwt., ten 24-prs. of 50 cwt., five 8-inch mortars, and five 5½-inch mortars have been laid down as a basis for future siege equipments. In any future sieges, however a large proportion of the ordnance will consist of rifled cannon. The 64-pr. or 7-inch B.L. will replace the 8-inch gun, and the 40-pr. or 64-pr., the 24-pr. guns of 50 cwt.[2]

75. Besides the siege or travelling carriages, sling and platform waggons must be provided for the transport of guns and mortars, as well as Flanders waggons, trench and hand carts for that of ammunition and other stores. Sling waggons are very useful in moving guns, when it is required to replace those that are injured, or when guns provided with garrison or naval carriages are used, in which case the carriage is also transported upon the waggon.[3]

76. The arming of siege batteries is carried on during the night, the guns being generally conveyed from the park across the open ground, though when the bottom of the trenches is sufficiently wide and firm, they may be taken along the latter.[4] * * * *

[1] Owen. [2] Hand Book. [3] Owen [4] *Ibid.*

77. In commencing a siege, the guns should not open fire until the batteries are sufficiently armed to be able to produce the desired effect, as such a proceeding would render those pieces already in battery liable to be silenced by the fire of the enemy before any result could be accomplished; and in general a few guns should not be permitted to commence firing at any time by themselves. * * * * * * * * * Previous to an assault, it is generally the practice to endeavour as much as possible to silence the guns, of the besieged place, by a heavy bombardment or cannonade of some hours, from all the besieger's ordnance, which should especially be directed on those of the enemy's batteries, that would seem most likely to be able to annoy or cause much damage to the assaulting troops.[1]

78. From experiments, carried on at Newhaven, by the Ordnance Select Committee, in August, 1863, against earthworks, it became manifest, that,

(1) The best means of destroying an earthen parapet, is by the direct fire of rifled guns with full charge, throwing shells of large capacity for powder. *One large gun is much to be preferred to several of a smaller nature.*

(2) In breaching an earthen parapet, the fire should be concentrated as much as possible, and the breach formed by cutting down the parapet, commencing at the top, the earth is by that means blown away. Shells planted low in the work merely throw up the earth into the breach already opened.

(3) Relatively speaking, smooth-bored guns are of little value for destroying large well constructed earthworks; and except for ricochet or enfilade fire, they ought to be discarded from any future siege train, when a supply of rifled guns can be obtained.

(4) The guns forming a siege train for service against earthen parapets should fire as large a projectile as circumstances will permit, and, as before observed, *too great exertions cannot be made to bring a large gun to the front, if possible.* One 7-inch B.L. would probably be equal to a battery of 40-prs.

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[1] Owen.

(5) It has been clearly proved that twenty-five feet on the superior slope is the minimum thickness that should be given to future parapets designed to resist heavy rifled ordnance; even this has been breached by one rifled gun firing 110-pr. live shells, with percussion fuzes, in from three to four hours. If there had been embrasures, it would have been done in a shorter time.

(6) A working party, during the day, could not attempt the repair of an earthen parapet under a fire of rifled guns at 1000 yards, without great loss of life.[1]

79. The best place for making a breach, in ravelins, bastions, &c., is about thirty yards from their salient angles. The batteries should commence by marking out by their fire the extent of the breach intended to be made, first by striking out a horizontal line as near the bottom of the revetment as possible, and afterwards two others perpendicular to, and at the extremities of this line. Should the breach be required to be extensive, it will be necessary to form intermediate lines. Then, by continuing to deepen these two or more cuts, and occasionally firing salvoes at the part to be brought down, the wall will give way in a mass. The guns, must, however, at first fire low, and gradually advance upwards until the breach is effected; and when the wall has given way, the firing should be continued until the slope of the breach is made practicable.[2]

80. With elongated shot from rifled ordnance, no doubt the manner of forming the breach would be but little altered, but the time required, and the number of shot would be less, and the range might be greater than when ordinary round projectiles are used, the accuracy of fire obtained with rifled ordnance being so very superior to that with smooth-bored guns.[3]

81. At the experiments on the Martello Tower at Eastbourne, the penetrations obtained were as follows:—

40-pr. solid shot 'Armstrong rifled gun,' (41 lbs.), charge 5 lbs, penetration of 47-inches to 65-inches.

80-pr. solid shot (80 lbs.), charge 10 lbs., penetration of 51-inches to 90-inches.

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[1] Hand-Book.

[2] Griffiths.

[3] Owen.

7-inch howitzer, '100-pr.,' plugged shell (104 lbs.), charge 9 lbs., penetration 38-inches to 51-inches. The above penetrations were at a range of 1032 yards, the brickwork of the tower was of admirable quality.[1]

Garrison Artillery.

82. In the defence of a fortress, the guns should be placed so as to defend all the approaches to it; the positions of the different descriptions of ordnance being determined by their respective powers and natures. Previous to the investment by an enemy, and indeed, at all times, the artillery officers should make themselves acquainted with the exact distance from their guns of every object in the surrounding country, such as trees, hillocks, buildings, &c., which may happen to be within range, as this will enable the fire of the besieged to be executed with precision at the time when the besiegers are laying out their batteries, and to maintain a superiority in this respect over that of the enemy, after his batteries are armed; at all events, until such time as he may have ascertained the different ranges by trial. * * *
During the second period of the attack, *i.e.*, until the besiegers' batteries are fully armed, the artillery of the place is paramount and usually undisturbed by the fire of guns or mortars; this advantage should not therefore be thrown away, but every effort should be made to dismount the enemy's guns, destroy his magazines, &c., and thus delay the progress of the siege.[2] * * * * * *

83. The armament of coast batteries depends chiefly on the nature of the coast which they are required to defend, and the facilities afforded by it for the landing of an enemy; the depth of water in shore, and the object of such battery or batteries, whether this object be to command the approach to a harbour or landing place, to cover a roadstead, &c.[3]

84. In the case of coast batteries attacked by iron-plated vessels, the burden of active defence falls upon the artillery, unless the defenders have time to organize extensively such obstacles as torpedoes, booms, sunken vessels, floating batteries, &c.[4]

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[1] Hand-Book. [2] Owen. [3] *Ibid.* [4] Hand-Book.

85. The following rules have been deduced from experiments carried on against iron plates:—

(1) Steel shot and shell, and shot made of iron cast in chill, are the projectiles proper for use in attacking iron-plated structures.

(2) Successfully to attack armour-plated vessels, it is necessary that shot should have a velocity on impact of at least 1000 feet per second.

(3) A steel shot fired from a 9.2-inch S.B. gun with a 25lbs. charge, will penetrate a 5½-inch iron plate, and a sound line-of-battle ship's side at 200 yards range, and will make a hole in the ship that would endanger her if penetrated near the water line.

(4) A steel shot fired from the same gun at the same range, with a 30lbs. charge, will penetrate a 6-inch plate on a line-of-battle ship, and will rend and splinter the planking inboard.

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(7) The effect of the 100-pr. S.B. gun at a range of 1200 yards, is perfectly insignificant upon an iron-plated ship.

(8) Elongated projectiles have great advantages over those of a spherical form of the same weight, for use against iron-plated structures.

(9) A wooden ship simply plated with six inches of iron, may be effectually attacked at 1,500 yards range by steel projectiles, from rifled guns capable of bearing about 40lbs. charges of powder.

(10) Conical-ended projectiles are superior to flat-ended projectiles for penetration.

(11) The resisting power of iron plates, is as the squares of their thickness.[1]

Rockets.

86. Although rockets had been used for war purposes (it is generally supposed) for centuries in the East, and at an early date even in Europe, they were of little practical utility, until improvements in their con-

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[1] Hand-Book.

struction and manufacture were introduced by Sir William Congreve, at the beginning of the present century. Five natures of rockets were proposed by that officer, viz., 3, 6, 12, 24, and 32-prs.; the latter are, however, no longer in the service.[1]

87. Rockets are carried by field artillery in special rocket carriages, having separate boxes for the sticks. The rocket *tube* is of wrought-iron. * * * Each tube is supported on four legs, and those for the 6-prs. and 12-prs. are provided with a tangent sight to 20°. For greater elevations a quadrant and plummet are used. * * * They may be fired from a common V trough, or in volleys off the ground. * * * * Hale's rockets are without sticks; the rocket is kept point foremost in flight by rotation, caused by the side pressure of the gas in issuing upon the tailpiece attached to the case; this piece is formed of three tubes, cut away on one side, each tube being in continuation of a circular vent in the base of the rocket. Under this arrangement there is free escape of the gas on one side, and a pressure sufficient to cause rotation on the other. They are driven with a quicker composition than the other description of rocket.[2]

88. The following are the service rockets, viz., 3-prs., 12-prs., and 24-prs. They have no sticks, but are kept from turning over in flight, by the rotation established about their longer axis, by the pressure of the gas on three half shields, in the prolongation of the vents, which form the tailpiece.[3]

89. The convenience attending the use of rockets over other projectiles, is thus stated by Sir W. Congreve:—"The rocket carcass is not only fired without reaction upon the point from which it is discharged, but it is also unencumbered with the necessity of heavy ordnance to protect it, as is the case with every other carcass. It is ammunition without ordnance; it is the soul of artillery without the body; and has, therefore, from the first principles of its flight, a decided advantage for the conveniency of use over the spherical carcass."[4]

90. Marmont, on the importance of rockets, observes:—"In the mountains we transport at the present time, with great difficulty, a small number of pieces which there can be of little effect. With

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[1] Owen. [2] Hand-Book. [3] Manual of Artillery Exercises. [4] Owen.

rockets, we have an arm of long range, which may be established everywhere in profusion upon rocky summits, as well as upon lower plateaux.* On level plains every building is transformed into a fortress, and the roof of a village church becomes, at will, the platform of a formidable battery."

91. Rockets may be of great use when a disembarkation of troops takes place in presence of an enemy, since rocket men can land with the first party of infantry, and commence firing before any guns can be brought into position. Rockets will not only be useful against masses of cavalry and squares of infantry, but, when guns cannot be brought up, may be of material benefit in dislodging an enemy from villages or houses, which could not be approached by infantry alone, without a considerable loss of men, and chance of failure. The larger rockets are of great service in bombardments and sieges.[1]

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* The introduction of light *rifled* guns, adapted for mountain transport, has modified these alleged advantages. F.J.S.

[1] Griffiths.

CHAPTER IV.

SECTION I.

INFANTRY.

> On dit proverbialement que "l'infanterie est la reine des batailles." C'est une vérité qu'aucun homme de guerre ne contestera, mais dont l'expression vague et poétique veut être précisée. L'infanterie est tout à la fois *l'agent principal* du combat, et le *point d'appui* de tous les autres agents du combat.
>
> LE MARÉCHAL TROCHU.

1. Infantry is undoubtedly the most important arm of the service, since it forms four-fifths of an army and is used both in the attack and defence of positions. If we must admit that, next to the genius of the general, the infantry arm is the most valuable instrument in gaining a victory, it is no less true that most important aid is given by the cavalry and artillery, and that without their assistance the infantry might at times be very seriously compromised, and at others could achieve only partial success.[1]

2. It was to their infantry that the Swiss and Spaniards, during the sixteenth century, and the Swedes during the seventeenth, owed their importance in Europe. It was by their infantry, formed during the wars of the Revolution, and solidly disciplined in the camps of 1803 and 1804, that the French obtained their extraordinary conquests during the succeeding campaigns. It is likewise to their infantry that the British owe the victories they have won in every part of the globe.[2]

3. During the middle ages, all art in warfare was for a long time in abeyance, and armies consisted of swarms of cavalry, infantry being regarded as merely of secondary importance. The Swiss were the first to restore infantry to that degree of estimation in which it had been held in the armies of the Republics of Grecce and Rome. Weary of the German yoke, the Swiss took up arms to expel the invader, and recover their liberty. Their own country supplied no horses, and being destitute of the means of purchasing from their neighbours, they

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[1] Jomini, Chap. VII., Art. 44.

[2] Jervis.

adopted, perhaps without intending it, an organization resembling that of the Greeks, even to the arms with which they supplied themselves. Their battalions, strong in numbers and formed in compact close order, were enabled with their pikes to defend themselves against charges of cavalry; and the Austrian squadrons sent to subdue them were repeatedly defeated and put to the rout. The fame of the Swiss infantry soon spread, their services were eagerly sought for by other countries, and corps of Swiss infantry were enrolled by several of the sovereigns of Europe for their own special service. The Swiss not being able to supply all the demands made for their services, corps of pikemen, modelled upon their system, were formed in Spain, France, and Germany. The efficiency of infantry, as a military force, was thus once more established, and an opinion even gained ground of its superiority to cavalry, an idea which had been abandoned at the fall of the empire. Under Solyman II., the Turkish infantry was in such an efficient condition, that, it was esteemed the best in Europe. The facility with which infantry can operate on any ground, the ease with which it may be recruited and instructed, and the small proportion which its wants bear to those of cavalry, seem to point out this arm as best adapted for the main body of an army.[1]

4. The company is the element of the organization, discipline and administration: the battalion is the true military element in the infantry; the unit for battle. It is by battalion that movements and manœuvres are made; it is by battalion that the fighting is done. * * * * Two conditions are observed in the numerical composition of a battalion. It should be easy to move, and, when deployed, the voice of the commander should be readily heard at both extremities of the line. Observing these limits, the number of companies, and the *personnel* of each company may be increased more or less at will.[2]

5. The parade marching of the infantry of the Prussian Guard, has been renowned ever since its recruits were so harshly drilled by the stern soldier who first formed it. Since that time great alterations have been made both in the tactics and treatment of the men; the Prussian grenadiers no longer move in the field in the stiff unbending formation which regarded soldiers only as machines. But while the Prussians

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[1] Lieut.-Colonel Graham. [2] Marmont.

have lately adopted a system of manœuvres for field service which unites immense elasticity with great rapidity of movement, they have not failed to observe that the foundation of all tactical pliability lies in previous solidity and precision; that troops who cannot move well on parade rarely can be of much use in service, and that before infantry soldiers can dash about as skirmishers they must be able to move accurately in more solid formation.[1]

6. If infantry advances, driving back the enemy's lines, and successively occupying their positions, the victory is gained. If it holds its ground, standing firm and without looking back, the victory remains uncertain, but a fortunate manœuvre and a final effort may be able to decide the result. If, on the other hand, it retreats unable to take advantage of the—" points d'appui "—that the battle-field offers, to gain ground and resume the offensive, defeat may be considered certain. Thus the position of the infantry, on a battle-field, determines the final crisis, as well as the hopes of the whole army. What a noble mission! And this temporary mission accomplished, the infantry returns to its ordinary vocation, namely, marching daily heavily accoutred,—performing the most important duties, keeping guard by day and night over all, and assisting all arms of the service.[2]

7. Respecting the qualities of the British soldier, Müffling bears the following testimony:—'For a battle, there is not perhaps in Europe an army equal to the British; that is to say, none whose tuition, discipline, and whole military tendency is so purely and exclusively calculated for giving battle. The British soldier is vigorous, well fed, by nature brave and intrepid, trained to the most rigorous discipline, and admirably well armed. The infantry resist the attacks of the cavalry with great confidence, and, when taken in the flank or rear, British troops are less disconcerted than any other European army. These circumstances in their favour will explain how this army, since the Duke of Wellington conducted it, has never yet been defeated in the open field.'[3]

8. Place an attainable object of war before the French soldier, and he will make supernatural efforts to gain it, but failing, he becomes proportionally discouraged. Let some new chance be opened, some

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[1] Hozier, Vol. II. [2] Trochu [3] Chesney, Lecture, VI.

fresh stimulus applied to his ardent sensitive temper, and he will rush forward again with unbounded energy: the fear of death never checks him, he will attempt anything. But the unrelenting vigour of the British infantry in resistance wears his fury out; it was so proved in the Peninsula, where the sudden deafening shout, rolling over a field of battle more full and terrible than that of any other nation, and followed by the strong unwavering charge, often startled and appalled a French column, before whose fierce and vehement assault any other troops would have given way.[1]

9. Marshal Bugeaud, who had been, during seven years, the not unfrequently successful opponent of the English in the Peninsula, repeated very often in his despatches the following expression: "English infantry is the most formidable in Europe; fortunately there is not much of it." And this is an opinion which impartial personal observation, made in the midst of the English army during the war, has since confirmed in my mind.[2]

10. Modern infantry exercises its influence in conflict in two ways, in firing on and in charging the enemy. All its formations in battle have reference to one of these modes of action; the first defensive, the second essentially offensive.[3]

11. A charge of infantry may gain a battle, but it cannot destroy an army. The object of a charge of infantry is either to capture guns or to dislodge another body of infantry from a position. When the capture of guns is the object of the charge, success depends on the charging body persevering in its advance until it reaches the battery. If this can be effected, an absolute result will be obtained. The risk of failure will be in proportion to the distance of the battery and the number of guns of which it is composed. No extraordinary effort is required for infantry to seize a few detached guns; but when the fire of many guns is concentrated to oppose its attack, the havock created is so dreadful that the most courageous infantry frequently fails in the attempt to carry a powerful battery.[4]

12. There is no infantry, however brave, which can, without artillery, march with impunity ten or twelve hundred yards against

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[1] Napier, Vol. VI. [2] Trochu. [3] Hamley, Part VI, Chap. II.
[4] (Aide-Mémoire), Robertson.

sixteen pieces of cannon well-placed and well-served; before it could accomplish two-thirds of the distance, those men would be killed, wounded, or dispersed.[1]

13. At the battle of Leipsic, on the afternoon of the third day, the Allies concentrated on the French army, the fire of 800 guns, disposed in a semicircle of two miles in extent. For four hours the French troops sustained, without flinching this tremendous cannonade. During that period, columns of infantry repeatedly rushed forward to carry the batteries; but, as soon as they arrived within range of grape, they were swept away, and their shattered remnants driven back in confusion.[2]

14. When one body of infantry charges another, excepting in affairs of posts, a collision seldom or never takes place. The immediate result of a charge of infantry is simply to cause the enemy to abandon a position. Nor can this result be obtained, even by the aid of great numerical superiority, without the attacking force sustaining a severe loss from the fire of their opponents. In this respect, the attack of infantry on infantry, differs materially from that of cavalry on cavalry.[3]

15. Jomini observes: "In real combats of infantry, I have never seen anything but battalions deployed commencing to fire by company, and finally by file, or else columns marching firmly against the enemy, who either retired without awaiting the columns, or repulsed them before an actual collision took place, or themselves moved out to meet the advance. I have seen *mêlées* of infantry in defiles and in villages, where the heads of columns came in actual bodily collision, and thrust each other with the bayonet; but I never saw such a thing on a regular field of battle."

16. The Prussian infantry engages almost always in company columns. It endeavours to take the offensive as often as possible, operating upon the enemy's wings more than on the front. The attacks are not general, being without connection and uniform direction; they do not make up for this want by great vigour of execution. In the defensive, the Prussian infantry is deployed, and

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[1] Napoleon. [2] (Aide-Mémoire), Robertson. [3] *Ibid.*

permits the enemy to approach to within three or four hundred paces, when it delivers volleys by word of command; rapid fire being reserved for extreme cases. It is not formed into squares, but repulses cavalry charges whilst deployed, by means of volley or rapid firing, withheld to the last moment.

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The French order of battle, based on the battalion as the tactical unit, is 'considered by the French' more preferable, as it enters admirably into all the combinations of the battle-field, whether for manœuvring or for the attack or defence. Very mobile, ready for deployment or column formation, the battalion is always well in hand, without which, there can be no positive or complete success.[1]

17. * * * At Solferino, the corps of MacMahon and Niel were formed in two lines of battalion columns of divisions (two companies), at deploying intervals; and the organization of the battalions corresponded, for each column was the depth of three divisions, or six ranks. These formations appear to have been covered and preceded by the light infantry battalions attached to divisions. The French *chasseurs-à-pied* extend before the enemy in groups of four men, the two files of the group five paces apart, and the maximum intervals of groups forty paces, to be diminished at need. The groups, in case of a loose attack of cavalry, form squares, a man to each face of the square. A small reserve of each company is posted from one to two hundred yards in its rear, to fill gaps, serve ammunition, and form a rallying-point. Against more formidable attacks, they form solid circles of sections, subdivisions or companies. In advocating his views, Jomini makes an exception in the case of the attack of isolated posts, where he thinks more massive formations admissible. Accordingly we find the French attacking the hill of Solferino, not in deployed but in contiguous columns, and on a depth of several battalions; and it may be added, they suffered accordingly, although they carried the post. For facility of formation, and of subsequent deployment to the front, columns of grand divisions on a central division are preferable in performing this manœuvre, since the flank divisions, facing inwards, would simultaneously form in front and rear of the central one. But for ready deployment to a flank, double column of companies is better,

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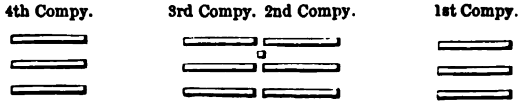
[1] Heintz.

since one wing of the battalion, by simultaneous wheel of its companies into line, would cover the deployment of the other. The choice between them must depend on circumstances.[1]

18. 'The method of skirmishing in use amongst the French at St. Maur, in 1868, is thus described.' One company of each battalion is always permanently detached for skirmishing. It is broken up into two parts, one of which skirmishes, whilst the other acts as support at distances varying from 100 to 150 yards. The skirmisher invariably lies prone, with his right leg crossed over his left, his toes taking a firm grip of the ground. He leans on his left elbow, and in case stones or other inequalities of the ground do not present a favourable cover for himself, or rest for his piece, he usually forms one artificially with his chaco or pack. Nothing could exceed their activity, and the celerity with which they took advantage of any cover which presented itself. We remarked that a skirmisher, in the position just described is practically invisible at 300 yards on ordinary grass land. The soldier's pouch being well brought round to his right side, enables him to load without materially altering his position.[2]

19. The Prussian battalion, consists of four companies, each of which is subdivided into two pelotons. Each company is then the fourth part of a battalion, corresponding to the division, of two pelotons, of a French battalion. The battalion is formed in three ranks; the third rank supplies the skirmishers. When in company columns, each company is formed in column of pelotons: the 1st and 2nd companies on their 2nd peloton, the 3rd and 4th companies on their 1st peloton. The third rank of each of these pelotons, forms a 3rd peloton, in rear of the company. All the pelotons are thus formed in two ranks, and the battalion becomes then in the order shewn in the accompanying figure: the two centre companies contiguous and forming a double column, and at each wing a company in column of pelotons. The intervals between the flank and centre columns, vary according to circumstances, although usually they do not exceed 80 or 100 paces;



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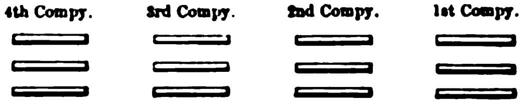
[1] Hamley, Part VI., Chap. V.

[2] Foreign Tour.

When a battalion is required to be formed in echelon, each company column is formed on the same corresponding peloton, as shewn in the annexed figure. This latter formation, is less made use of, than the first, which is the column of attack.[1]



20. When the element of rapidity of fire came to be added to that of precision, other modifications were thought to be necessary, in which the Prussians took the lead, and other powers have followed, or are following, in the same direction. Still greater flexibility, and a further diminution of depth of formation, were sought for; and, for these considerations, solidity, momentum, and unity of command were in some degree sacrificed, since the battalion itself was broken into separate columns, in this way:—

The Prussian battalions, 1000 strong, are formed in *three* ranks; in manœuvring, the third rank, composed of the skirmishers, is withdrawn some paces to the rear, and forms, to some extent, independently. The battalion is divided into four companies, the company into two divisions, and the column of manœuvre is that of the battalion in double column of divisions on the centre (corresponding to our double column of companies). But, for attack, the formation of the 1st line is different, and its columns are thus formed:

Each company forms a separate column of divisions, and these columns are disposed in line at deploying intervals; or sometimes the two centre columns are contiguous, and the others at deploying intervals. In advancing, the divisions of the third rank fill the intervals, or run out to cover the front, half as skirmishers, half as supports. Thus the battalion forms a line of four columns, four ranks deep, and a third of its numbers are employed as skirmishers. When it arrives near the enemy the skirmishers either form in the intervals to augment the general front of fire, or in rear to support the charge; the front ranks of the columns kneel, and thus the whole deliver their fire. So little is the formation of a long continuous line thought of, that the deployment into one line of even one battalion is discouraged. The Austrian formation for attack agrees with the Prussian, in its main principle.[1]

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[1] Heints.

21. 'At the Austrian camp of Brück, in 1868,'—the infantry marched "at ease," never fixed bayonets, and except when skirmishing, carried their rifles slung over their shoulders. Advances were generally made in columns of companies covered by skirmishers. The intervals between individual skirmishers seemed to be little regarded, more importance being placed on their taking up advantageous positions under cover, and steadiness when firing.—We remarked no difference in the method of employing the Jägers and the line. Ammunition was carried in two pouches fastened on to the waist belt, one behind, and the other in front of the soldier. This belt was attached to the knapsack straps, thus throwing most of the weight on the shoulders. Their movements were rather slow, in comparison with the French.[2]

22. The most important feature in the Prussian mode of manœuvring infantry is the system of moving in company columns; the company is the fourth of the battalion, and on war strength equal to 250 men; the captain is mounted, the company column is six men deep, when the battalion is in the first line all four company columns may be formed at deploying intervals, or as is more usual, the two centre columns may be contiguous and the flank columns at deploying intervals; this splits up the battalion without dismembering it, and appears a most happy application of the principle of columns, it gives independence and rapidity of movement to a marked degree. The skirmishers may be thrown out from each company or from the two flank companies; the skirmishers of each company cover its front, the whole battalion therefore may either have a connected line of skirmishers or two or four broken lines. A battalion in line in covering its front with skirmishers, at first sends two skirmishing subdivisions to the front round the flanks, these throw out one or more sections (4 to 6 files), thus the flanks or extremities of our line are first covered, if more skirmishers are required they are supplied from the remaining skirmishing subdivisions and extend inwards from those first formed till in the limit the entire front is covered with a thick line of skirmishers. It is a rule which illustrates

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[1] Hamley, Part VI., Chap. V.

[2] Foreign Tour.

the good division of labour and chain of responsibility in the Prussian service that, "to facilitate control through their leaders the skirmishers of each section (4 to 6 files) work together as a group; the under-officers are told off to the different sections, between the different groups (in open ground) an interval of a few paces is allowed that the under-officers in command may better supervise their men. The under-officers are not obliged to remain at any particular post, but place themselves wherever their presence is most required." The general principle of Prussian tactics being to gain a position wherever possible on the enemy's flank, they hold that it is neither necessary nor wise to advance and open fire uniformly on every part of a front, even if it be only about 200 or 300 yards. It is sufficient to carry the commanding points of the ground, when the enemy must yield the lower ground, or be destroyed, or cut off.

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It is very rarely that the whole battalion is deployed into line, nor is there the same occasion for deploying when the battalion can be so readily broken up into its four component parts, either of which can be deployed separately.[1]

23. The advantage of the formation in battalion columns, or Prussian company columns, of attack may thus be enumerated.

(1) Facility of formation and deployment.

(2) Slight depth offered to the enemy's projectiles.

(3) The extreme extension in which a large body can make an orderly advance.

(4) A superiority of solidity and impulsion in charging a two-deep line.

(5) Power of taking advantage of such shelter as the ground may offer during the advance.

(6) A considerable front of fire in covering a charge of formation near the enemy.

(7) Readiness to form to a flank, either to meet a flank attack or to follow up a success.[2]

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[1] W.H.G.

[2] Hamley, Part VI., Chap. V

24. The notable characteristics of the Prussian system may be collected under the following heads:—

(1) To provoke and keep the adversary engaged in a combat of musketry.

(2) When on the defensive, endeavour to cause the enemy to manœuvre on plain ground, when on the offensive to manœuvre oneself in broken ground.

(3) To fight in a deep order, yet so that when great and rapid results are to be attained, the broader front can be re-established at any moment.

(4) Never to attack on the front alone, but at the same time on one or both flanks.[1]

Section II.

COLUMN AND LINE FORMATIONS.

1. In the 'Commission des Conférences Régimentaires,'—instituted by the late Marshal Niel in France, in 1869, M. Maldan, chef d'escadron d'artillerie, in his —'considerations générales sur les modifications que la tactique doit subir par suite du nouvel état de l'armement Européen,' says, "The deployed order will be nearly always necessary for the order of battle, in order to fire, and deep formations which are not favourable for rapid movements must be abandoned, which, without increasing the fire, offer to artillery and small arms, at long range an object dangerous as well as useless. In order to bring a heavier fire on an enemy, it will perhaps in most cases, be necessary to adopt the formation in four ranks; the first, kneeling, seated or laying flat, in order to have four lines of fire, without much increasing the surface exposed to the enemy. When a company does not fire, it may be that skirmishers or others are

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[1] Benedek.

in the way, or that the moment for action has not arrived; it is then better to be out of sight of the enemy. In making this proposal, the supports and reserves which are not engaged and which for the time are not required, are considered. The best means of obtaining this result is to cover the battalions by a strong line of skirmishers at a convenient distance from the line of battle, and to relieve them before they are overpowered or have given way from fatigue or severe losses; so that, the confidence and *morale* of the soldier may be sustained. With rapid firing, a line of skirmishers well trained and commanded, is able frequently to arrest the enemy, and even often, by its fire to dislodge him, from the position which he is occupying. Skirmishing is likely to become the normal mode of infantry engagements; it permits all the chances arising from uneven ground, cover offered by woods, trees, stones, ditches, being taken advantage of more than any other formation, and serves admirably for the purpose desired, namely, to strike the enemy with as little exposure as possible. Napoleon approved of the employment of skirmishers, as a principal means of attack. In his memoirs he says,—"During an important day, a line of battle becomes entirely skirmishing, sometimes even twice."[1]

2. At the battle of Vimiero, the rapidity with which the French soldiers rallied, and recovered their order after * a severe check, was admirable, but their habitual method of attacking in column cannot be praised. Against the Austrians, Russians, and Prussians, it may have been successful, but against the British it must always fail, because the English infantry is sufficiently firm, intelligent, and well disciplined, to wait calmly in lines for the adverse masses, and sufficiently bold to close upon them with the bayonet. The column is undoubtedly excellent for all movements short of the actual charge, but as the Macedonian phalanx was unable to resist the open formation of the Roman legion, so will the close column be unequal to sustain the fire and charge of a good line aided by artillery. The natural repugnance of men, to trample on their own dead and wounded, the cries and groans of the latter, and the whistling of the cannon-shots as they tear open the ranks, produce the greatest disorder, especially in the centre of attacking columns, which, blinded by smoke, unsteadfast of footing, and bewildered by words of

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[1] Maldan.

command coming from a multitude of officers crowded together, can neither see what is taking place, nor make any effort to advance or retreat without increasing the confusion: no example of courage can be useful, no moral effect can be produced by the spirit of individuals, except upon the head, which is often firm, and even victorious at the moment when the rear is flying in terror. Neverthless, well managed columns are the very soul of military operations; in them is the victory, and in them also is safety to be found after a defeat. The secret consists in knowing when and where to extend the front.[1]

English lines and French columns at Albuera.

3. At the battle of Albuera, at the critical moment, when the battle appeared to be lost, Cole's division which had been left to observe Badajoz, arrived upon the ground. One brigade, the fusilier brigade, was led with great promptitude by Colonel Hardinge into action, and its onslaught managed with admirable skill, proved so determined, that opposition went down before it. The enemy's columns never found time to deploy; they were decimated by the fire of these battalions, which advanced upon them in echelon of lines, while Dixon's guns, at an interval of a few hundred yards, swept them through and through with canister. After an ineffectual attempt to spread out, they broke and fled, leaving the heights in possession of 1500 British infantry, all that remained unhurt of 6000.[2]

Napier thus describes the close of this well known contest:—Colonel Hardinge boldly ordered General Cole to advance, and then riding to Colonel Abercrombie, who commanded the remaining brigade of the second division, directed him also to push forward into the fight.

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Cole with the fusiliers, flanked by a battalion of the Lusitanian legion under Colonel Hawkshawe, mounted the hill, dispersed the lancers, recovered the captured guns, and appeared on the right of Houghton's brigade exactly as Abercrombie passed it on the left. Such a gallant line, issuing from the midst of the smoke and rapidly separating itself from the confused and broken multitude, startled the enemy's heavy masses, which were increasing and pressing onwards as to an assured victory: they wavered, hesitated, and then vomiting forth a storm of fire, hastily endeavoured to enlarge their front, while a fearful discharge of grape from all their artillery whistled through the British ranks. Myers was killed; Cole and the three Colonels, Ellis, Blakeney and Hawkshawe, fell wounded, and the fusilier battalions, struck by the iron tempest, reeled, and staggered like sinking ships. Suddenly and sternly recovering, they closed on their terrible enemies, and then was seen with what a strength and majesty the British soldier fights. In vain did Soult, by voice and gesture, animate his Frenchmen; in vain did the hardiest veterans, extricating themselves from the crowded columns, sacrifice their lives to gain time for the mass to open out on such a fair field; in vain did the mass itself bear up, and fiercely striving, fire indiscriminately upon friends and foes, while the horsemen hovering on the flank threatened to charge the advancing line. Nothing could stop that astonishing infantry. No sudden burst of undisciplined valour, no nervous enthusiasm, weakened the stability of their order; their flashing eyes were bent on the dark columns in their front; their measured tread shook the ground; their dreadful volleys swept away the head of every formation; their deafening shouts overpowered the dissonant cries that broke from all parts of the tumultous crowd, as foot by foot and with a horrid carnage it was driven by the incessant vigour of the attack to the farthest edge of the hill. In vain did the French reserves, joining with the struggling multitude, endeavour to sustain the fight; their efforts only increased the irremediable confusion, and the mighty mass giving way like a loosened cliff, went headlong down the ascent. The rain flowed after in streams discoloured with blood, and 1500 unwounded men, the remnant of 6000 unconquerable British soldiers, stood triumphant on the fatal hill!'[1]

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[1] Napier, Vol. I.

[2] Gleig.

Protracted combat, between line and column, at the Alma.

4. "The left Kazan column (at the battle of the Alma) began that obstinate fight with the 7th Fusiliers which was destined to last from the commencement of the infantry fight until almost the close of the battle.

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[1] Napier, Vol. III.

It was between the Great Causeway and the slopes of the Kourganè Hill that Lacy Yea, with his 7th Fusiliers, had long been maintaining an obstinate conflict. Long ago, he had crossed the river, had brought his men to the top of the bank, and was trying to form them, when there came down marching upon him a strong Russian column—a column of two battalions, and numbering 1500 men. The body was formed with great precision in close column, with a front of only one company; but a chain of skirmishers thrown out on either flank in prolongation of the front rank, sought to combine with the solid formation of the column some of the advantages of an array in line. The column stood halted at a distance of, perhaps, some fifty yards from the knotted chain of soldiery which represented the 7th Fusiliers.

Lacy Yea had not time to put his Fusiliers in their wonted array, for the enemy's column was so near that, forthwith and at the instant, it was necessary to ply it with fire; but what man could do, he did. Though he could not form an even array, yet he disentangled the thickest clusters of the soldiery, and forced the men to open out into a lengthened chain, approaching to line formation. Numbers of the Fusiliers were wanting, and, on the other hand, there were mingled with the battalion many of the soldiery of other regiments. With a force in this state, Yea was not in a condition to attempt a charge or any other combined movement. All he could hope to be able to do was to keep his people firm on their ground, to hinder them from contracting their front or gathering into heavy clusters, and then leave every man to make the best use he could of his rifle.

Continental generals would not easily believe that, upon fair, open ground, there could be a doubtful conflict between, on the one side, a body of 1500 brave, steady, disciplined soldiers, superbly massed in close column, and on the other a loose knotted chain of six or seven hundred light infantry men without formation. Yet the fight was not so unequal as it seemed. A close column of infantry has only small means of offence, and is itself a thing so easy to hurt that every volley it receives from steady troops must load it with corpses and wounded men.

Portions of the column—mainly those in the centre and in the rear—became discomposed and unsettled. Numbers of men moved a little one way or another, and of these some looked as though they stepped a pace backwards; but no man as yet turned round to face the rear. However, though the movement of each soldier taken singly was trifling and insignificant, yet even that little displacement of many men at the same time was shaking the structure. Plainly the men must be ceasing to feel that the column they stood in was solid. The ranks which had been straight as arrows became bent and wavy.

The Russian officers well understood these signs. With drawn swords, moving hither and thither as actively as they could in their long, grey, melancholy coats, they seemed to become loud and vehement with their orders, their entreaties, their threats. Presently their gestures grew violent, and more than one officer was seen to go and seize a wavering soldier by the throat. But in vain; for seemingly by some law of its own nature, rather than under any new stress of external force, the column began to dissolve; the hard mass became fluid. It still cohered; but what had been, as it were, the outlines of a wall, were becoming like the outlines of a cloud. First some, then more, then all, turned round. Moving slowly, and as though discontent with its fate, the column began to fall back.

The 7th Fusiliers bought this triumph with blood. In killed and wounded it lost twelve officers and more than 200 men."[1]

5. Wellington's system of combat was what is called the *defensive-offensive;* awaiting his adversary on chosen ground, he fatigued his assailants with his artillery and a murderous fire of musketry, and when they were about to pierce his line, he avoided this formidable movement by falling on them with his united forces. This system, under certain circumstances, may be as good as any other; it depends on the localities, the nature of the troops, and the character of your opponent. I received defensive-offensive battles at Rivoli and Austerlitz.[2]

6. The formation of battalions on the two central companies, and their being placed in two lines, and so placed that when formed in oblongs they stand in exchequer, as the 3rd division did at Waterloo, seems to be the best order of battle that can be adopted, either

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[1] Kinglake, Vol. II.

[2] *Life of Napoleon.*

for receiving an enemy's attack in a general action, or for approaching a position that is to be attacked. If an army is in line on a position, and the oblong formation has been predetermined to be made in the event of an attack by cavalry, we have seen how readily and effectually that formation can be accomplished; and supposing, on the contrary, that it is required to advance for the purpose of making an attack, the oblong formation being adopted, will enable a line of any magnitude to advance in order of battle for any required distance, in the most perfect order, until so near the enemy's artillery that deployment becomes necessary, which, from the formation on the two centre companies, would be more rapidly made than from any other. In the formation of oblongs by the 3rd division at Waterloo, to resist cavalry, the oblongs had not the advantage of having artillery on their flanks. When guns are placed on their flanks, so as to protect their fronts by a fire of round-shot or shrapnel first, and next of grape-shot, there cannot be any fear for a line of battle of steady infantry, if attacked by cavalry while in this formation. The oblongs may be formed by battalions having any number of companies—ten, eight, six, or four; but in each case the flank faces must consist of only one company, formed four deep; that is, the two subdivisions of the company are formed the one behind the other.[1]

7. Jomini, concluded;—[*]

(1) That Wellington's system was certainly good for the defensive.

(2) That the system of Benningsen[†] might, according to circumstances, be as good for the offensive as for the defensive, since it was successfully used by Napoleon at the passage of the Tagliamento.

(3) That the most skilful tactician would experience great difficulty in marching forty or fifty deployed battalions in two or three ranks

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[*] Second Appendix to the Summary of the Art of War, written after the war in the Crimea.

[†] A mixed system used at Eylau by General Benningsen, which consisted in forming a regiment of three battalions by deploying the central one, the other two being in column on the wings. F.J.S.

[1] Kennedy.

over an interval of twelve or fifteen hundred yards, preserving sufficient order to attack an enemy in position with any chance of success, the front all the while being played upon by artillery and musketry.

Jomini had never seen anything of the kind in his experience, and regarded it as impossible; and was convinced that such a line could not advance to the attack in sufficiently good order to have the force necessary for success.

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He was not aware that Wellington, in any of his battles, ever marched in deployed lines to the attack of an enemy in position. He generally awaited the attack. At Vittoria and Toulouse he gained the victory by manœuvres against the flanks; and at Toulouse, Soult's right wing was beaten whilst descending the heights to attack. Even at Waterloo, what fate would have befallen the English army, if, leaving the plateau of Mount Saint Jean, it had marched in deployed order to attack Napoleon in position on the heights of La Belle Alliance?

8. Will the adoption of rifled small-arms and improved balls, bring about any important changes in the formation for battle, and the now recognised principles of tactics?

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• • • To decide battles, manœuvres are necessary, and victory will fall to the general who manœuvres most skilfully; and he cannot manœuvre except with deployed lines or lines of columns of battalions, either whole or subdivided into columns of one or two companies. To attempt to prescribe, by regulation, under what circumstances either of these systems is to be applied, would be absurd. If a general and an army can be found such that he can march upon the enemy in a deployed line of forty or fifty battalions, then let the shallow order be adopted, and the formation in columns be confined to the attack of isolated posts; but I freely confess that I would never accept the command of an army under this condition. The only point for a regulation for a formation for battle is to forbid the use of very deep columns, because they are heavy, and difficult to move, and to keep in order. Besides, they are so much exposed to artillery that their destruction seems inevitable, and their great depth does not increase in any respect their chances of success.[1]

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[1] Jomini.

9. Jomini, after discussing the subject, drew also the following conclusions, viz:—"That the improvements in fire-arms will not introduce any important change in the manner of taking troops into battle, but that it would be useful to introduce into the tactics of infantry, the formation of columns by companies, and to have a numerous body of good riflemen or skirmishers, and to exercise the troops considerably in firing. Those armies which have whole regiments of light infantry, may distribute them through the different brigades; but it would be preferable to detail sharpshooters alternately in each company, as they are needed, which would be practicable when the troops are accustomed to firing. * * * *

That in spite of the improvements of fire-arms, two armies in a battle will not pass the day in firing at each other from a distance; it will always be necessary for one of them to advance to the attack of the other.

That as this advance is necessary, success will depend, as formerly, upon the most skilful manœuvring, according to the principles of grand tactics, which consist in this, viz., in knowing how to direct the great mass of the troops at the proper moment upon the decisive point of the battle-field, and in employing for this purpose the simultaneous action of the three arms.

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That victory may, with much certainty, be expected by the party taking the offensive, when the general in command possesses the talent of taking his troops into action in good order, and of boldly attacking the enemy; adopting the system of formation best adapted to the ground, to the spirit and quality of his troops, and to his own character."[1]

10. In an article which was published in the *Edinburgh Review* for January, 1866, emanating from an accomplished writer, we find Jomini's conclusions thus commented upon: "These convictions were given to the world long before the late American war. It is surprising to see how closely they are borne out by those of Colonel Lippitt, whose little work is understood to convey the pith of the lessons gained by the experience of the Union armies in three years' constant service. So far from countenancing the idea that the superior accuracy and

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[1] 2nd Appendix.

range of the rifle, will destroy the value of Napoleon's repeated advice to his marshals, 'Carry your troops well on, and attack the enemy vigorously;' this new authority declares, (page 7,) 'One cause of the *indecisiveness of the results* obtained in many of the battles of the late war, as compared with the great loss of life on both sides, has been, that the opposing battalions were too often kept firing at each other at a distance, both sustaining nearly equal loss, until the ranks were so weakened as to disable either party from making a vigorous and decisive charge.' And again at page 12; 'The recent improvements in fire-arms must render the fire on a close column of infantry, both by artillery and sharpshooters, still more destructive than it was before. But this sacrifice of life can be prevented, to a great extent, by using the columns at a proper time, and in a proper manner.'".

11. Greater mobility has been aimed at, and it has been attempted to give more life and independence to the tactical units. Movements in line are no longer employed, but in battalions formed in close column, or in column of attack. Each tactical unit reaches its position in line of battle by the most direct road, instead of making long flank movements in column at company distance.[1]

SECTION III.

INFANTRY OPPOSED TO CAVALRY.

1. Though good infantry alone has generally, in wars of the present century, successfully resisted cavalry alone, yet cavalry and artillery together ought to destroy it. For the cavalry dividing into two or more bodies, and manœuvring on the flanks of its line of retreat, would force it to form squares or to shew front on various sides, which formation could not long be maintained under the fire of the guns. Unless the ground were broken and favourable to infantry, or shelter very near, the case of the infantry, ought to be desperate.[2]

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[1] Ambert.

[2] Hamley, Part VI, Chap. II.

2. The question of infantry squares, has been a subject of much controversy; it has not been more satisfactorily solved in the campaign of 1866, than in previous ones. Each of the three belligerents (Prussians, Austrians and Bavarians) possessed a large force of cavalry; encounters were frequent, cavalry with cavalry, and cavalry with infantry; in small parties more than in masses, it is true, but generally with determination; to meet these attacks the infantry adopted many formations, from Langensalza where the Prussians received the charge of the Hanoverians, up to Rokeinitz, where the Austrians formed the last square of the campaign. Many of these squares remained intact, some were broken; the results were so opposite, that it is impossible to arrive at any positive conclusion.[1]

3. "Impressed by the difficulty of keeping battalions under the fire of improved artillery, the French appear to approach the conclusion that squares should be altogether abolished, and that infantry should meet the attack of cavalry in line. So long as the line is secure, or its flanks, this would be judicious against cavalry accompanied and supported by artillery. But if the flank of the line were exposed, it would be impossible in any formation except a square to resist well-manœuvred squadrons.'[2]

4. Not only do the French "approach the conclusion," but General Le Bœuf, in his instructions for the Camp at Chalons, laid down the axiom that, "with the present rapidity of fire, it will almost always happen that a battalion deployed, the wings of which are supported or even simply refused, will be able to receive and repulse a charge of cavalry." Sixty years ago Marshal Gouvoin St. Cyr declared that he had never found a case where the employment of squares against cavalry appeared to him to be indispensable. Yet it can hardly be supposed that at the Battle of Waterloo the English infantry could have so long and so successfully resisted the charges of the French horsemen in any other formation than that of squares. But the infantry whose steadiness and self-control enabled Wellington to hold his ground against great odds until the Prussians came up, were armed only with Brown Bess.[3]

5. In 1811, Trant, crossing the Lower Coa with four thousand militia, had taken post two miles from Almeida, when the river suddenly

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[1] Heintz.

[2] Hamley, Part VI, Chap. V.

[3] Times, Nov. 1, 1869.

flooded behind him. Near Fort Conception there was a brigade of the ninth corps, which had been employed to cover the march of the "French" battering train from Almeida to Ciudad Rodrigo; but ere those troops discovered Trant's dangerous position, he constructed a temporary bridge and was going to retire on the 6th, when he received a letter from the British Head Quarters, desiring him to be vigilant in cutting the communication with Almeida, and fearless, because the next day a British force would be up to his assistance. Marching then to Val de Mula, he interposed betweeen the fortress and the brigade of the ninth corps. The latter were already within half a mile of his position, and his destruction appeared inevitable; but suddenly two cannon shots were heard to the southward, the enemy immediately formed squares and commenced a retreat, and six squadrons of British cavalry and Bull's troop of Horse Artillery came sweeping over the plain in the rear. Military order and coolness, marked the French retreat across the Turones, yet the cannon shots ploughed with a fearful effect through their dense masses, and the horsemen continually flanked their line of march: they however gained the rough ground, and finally escaped over the Agueda by Barba del Puerco; but with the loss of three hundred men killed, wounded, and prisoners.[1]

6. 'When at Fuentes Onoro, the English divisions to the right of that village had been separated,' and the right wing turned, it was abundantly evident that the battle would soon be lost, if the original position was not immediately regained. In this posture of affairs Lord Wellington directed the seventh division to cross the Turones and move down the left bank to Frenada, the light division to retire over the plain, the cavalry to cover the rear. * *

* * General Crawford, who had resumed the command of the light division, first covered the passage of the seventh division over the Turones, and then retired slowly over the plain in squares, having the British cavalry principally on his flank. He was followed by the enemy's horse, which continually outflanked him, and near the wood surprised and sabred an advanced post of the guards, making Colonel Hill and fourteen men prisoners, but then continuing their charge against the 42nd regiment, the French were repulsed. Many times

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[1] Napier, Vol. III.

Montbrun made as if he would storm the light division squares, but the latter were too formidable to be meddled with; yet, in all this war, there was not a more dangerous hour for England. * * * * * * * * * * Montbrun's horsemen merely hovered about Crawford's squares, the plain was soon cleared, the cavalry took post behind the centre, and the light division formed a reserve to the right of the first division, sending the riflemen amongst the rocks to connect it with the seventh division, which had arrived at Frenada and was there joined by Julian Sanchez. At sight of this new front, so deeply lined with troops, the French stopped short, and commenced a heavy cannonade, which did great execution from the closeness of the allied masses; but twelve British guns replied with vigour and the violence of the enemy's fire abated; their cavalry then drew out of range.[1] * * * * * *

7. 'At the combat of Redinha,' the 52nd, the 95th and the Caçadores, assisted by a company of the 43rd, carried the ascent and cleared the woods, and their skirmishers even advanced on to the open plain; but the French battalions supported by four guns, immediately opened a heavy rolling fire, and at the same moment, Colonel Ferriere, of the third French Hussars, charged and took fourteen prisoners. This officer, during the whole campaign, had never failed to break in upon the skirmishers in the most critical moments; sometimes with a squadron, sometimes with only a few men; he was, however, sure to be found in the right place, and was continually proving how much may be done, even in the most rugged mountains, by a small body of good cavalry.[2]

8. 'At Salamanca,' Le Marchant's heavy horsemen flanked by Anson's light cavalry passed the left of the 3rd division at full speed, and the next instant 1200 French infantry though formed in several lines were trampled down, with a terrible clamor and disturbance.

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Nor were these valiant swordsmen yet exhausted. Their own general, Le Marchant, and many officers had fallen, but Cotton and all his staff was at their head, and with ranks confused, and blended together in one mass, still galloping forward they sustained from a fresh column an irregular stream of fire which emptied a hundred saddles, yet with fine courage and downright force, the survivors broke through this the third and strongest body of men that had encountered them, and Lord Edward Somerset, continuing his course at the head of one squadron, with a happy perseverance captured five guns. The French left was entirely broken, more than 2000 prisoners were taken, the French light horsemen abandoned that part of the field, and Thomières' division no longer existed as a military body.[1] * * * * * *

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[1] Napier, Vol. III. [2] *Ibid.*

9. The circumstances under which the 3rd division was placed in position at Waterloo, by Sir James Shaw Kennedy, are thus described by him. "The unsuccessful and disastrous attacks of the French cavalry on the division so posted, he presumed to consider as the most formidable which have been made by cavalry upon infantry since the use of fire-arms, with the exception of that at Eylau: that is, he considered that no other instance can be pointed out in modern history of infantry being attacked by an equally formidable force of cavalry, when the numbers, composition of the force, and the characters of the leaders of that force are taken into consideration, and the small number of the resisting force. The instances which seem to come nearest to it, are those of Auerstadt and Gross-Aspern. At Auerstadt the cavalry attacks were led by Blucher and Prince William of Prussia, in presence of the King of Prussia. Gudin and Morand, having squares in exchequer, resisted successfully. The case of Gross-Aspern, in 1809, is still more similar to that which took place at Waterloo. The formation of the squares in exchequer at Gross-Aspern, is said to have been made by the Archduke Charles, in consequence of the impression that had been made upon his mind by the perusal of a work by Jomini, in which such a formation was recommended; but no such formation was then known to the British army or in England. The number of squadrons that charged at Gross-Aspern was very great, probably about sixty; the composition admirable; and they were led by Bessières, Espagne, and Lasalle." "The cavalry charge at Eylau was led by Murat, Hautpoult, Grouchy, and Lepic, and was composed of the whole reserved cavalry and the Gardes à Cheval, amounting to, say, eighty squadrons. This charge was partly successful, and had a

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[1] Napier, Vol. V.

very beneficial influence on the result of the action in favour of Napoleon. The Russian infantry behaved with great gallantry; and it is fair to presume, that, with a better formation, they would have resisted successfully from the first: they did in the end, when strongly reinforced, repulse the cavalry attack. The cavalry attack at Eylau seemed to Sir J. Shaw Kennedy, to be the only one that appears in the history of modern European wars as being made upon infantry, with a greater force of cavalry than that by which the infantry was attacked at Waterloo; and in no case were the leaders more eminent, or the composition and confidence of the troops better. But here the comparison ends, for the number of the Russian infantry against whom the attack was directed was vastly greater than that against which it was made at Waterloo; and the supporting force of cavalry was also vastly greater at Eylau than at Waterloo." "Marlborough's charge, upon the centre of the French position at Blenheim, may be considered as having been made against much the same part of the line of battle as that made by the French cavalry at Waterloo, and up a similar slope, and made with a great body of cavalry; but the cases are totally dissimilar in principle, for Marlborough's was an attack upon cavalry; so completely so, that he even placed some infantry to face the few battalions of French infantry, that were on that part of the position." "At the battle of Borodino, the bastioned field work, and the most important central point of the field of battle, were taken by a charge of the 2nd French corps of cavalry; but there again the comparison fails entirely, for the attacking force consisted of both cavalry and infantry, and the attack was not made until the Russian line had suffered enormous by repeated attacks of infantry, and by cannonade. The cavalry charge at Eckmuhl, was perhaps the most formidable of modern times of cavalry against cavalry, but it was purely a cavalry affair. Hannibal's victories were won chiefly by charges of cavalry upon infantry,* in which the numbers may have been as great as those in the French charges at Waterloo; but the instances of cavalry charges upon infantry prior to infantry's being armed with the musket, and protected by the fire of artillery, are valueless as comparisons with charges of cavalry upon infantry, so armed and so protected."[1]

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* See 'Mémoires de Napoleon, par Montholon,' Vol. II., pp. 137, 138.

[1] Kennedy.

10. "In the third act of the drama at Waterloo, the grand attack of the French cavalry on Alten's division." The cavalry advanced upon the oblongs, the fire from the front faces of which was given at about thirty yards' distance. This caused the attacking cavalry to swerve to the right and left of the front faces of the squares, as usually has been the case in attacks of cavalry against infantry; but although they did not gallop in mass right on the bayonets of the infantry, they made every other effort to enter the oblongs, by firing into them, cutting aside the bayonets, and surrounding the oblongs to obtain a point of entrance. Those who were not immediately opposite to the faces of the oblongs passed the first and attacked the oblongs of the second line, showing great gallantry and persevering obstinacy to win; but all their efforts failed, and they had received the artillery fire, and were exposed to the fire of the front, flank, and rear faces of the oblongs: thus their numbers became fearfully diminished, and this splendid body of cavalry became a wreck, surrounded by the immoveable masses of infantry within the formations of which it had become entangled. While in this hopeless condition, it was driven down the exterior slope, by the Anglo-Allied cavalry. Soon, however, recovering their formation, the same forty squadrons resumed the charge, keeping a reserve in hand; and after further similar gallant but unsuccessful efforts against the oblongs, they were again, when in a state of utter confusion, driven down the exterior slope of the position by the Anglo-Allied cavalry. • • • •

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This third attack of cavalry consisted of seventy-seven squadrons, and was one of the most powerful efforts ever made by cavalry against infantry in the history of war. When it is considered, that about 12,000 men were employed in this attack, and that only 1000 horsemen could stand in line on the 1000 yards, which separate the enclosures of La Haye Sainte and Hougoumont—that, therefore, twelve different ranks, two deep, could assail in succession the allied force opposed to it—and when, further, the composition of this force is considered, and the reputation of its leaders, its imposing character becomes evident. It will be recollected that these horsemen could advance on a front of only 500 yards, as they were obliged to keep at some distance from the enclosures of both Hougoumont and La Haye Sainte; and it will also be recollected that the fire of artilley, under the protection of which this vast force of cavalry advanced to make its attacks, was of the most formidable character. Nearly the whole of the ground between La Haye Sainte and Hougoumont, was covered with this splendid array of horsemen: their advance to the attack, made in a manner that showed the highest discipline, was majestic and imposing. The attacks upon the oblongs were made with much enthusiasm and obstinacy; but in no instance was there one of them penetrated or overthrown, although several of them were formed by very young and totally inexperienced troops. These seventy-seven magnificent squadrons, after using their best endeavours to overthrow the infantry, suffered such severe loss by the fire of artillery and infantry as to be thrown into hopeless confusion, and were driven by the Allied cavalry down the exterior slope of the position. They soon rallied, and renewed the attack with the same daring spirit as before, but with the same results; for they were again thrown into a state of hopeless confusion, by the enormous loss they suffered under the fire of the squares and oblongs, and in this state were again driven down the exterior slope by the cavalry, at about half-past five o'clock; this third great act of the drama having continued about two hours, that is, from four to six o'clock. The results to Napoleon of these four grand cavalry attacks were, that he had lost two hours, and suffered such an enormous loss of his heavy cavalry, as to render it inefficient for any great effort during the further course of the battle. This most serious loss of time, and enormous and irreparable loss of cavalry, were uncompensated for by his having obtained any advantage whatever.[1]

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[1] Kennedy.

CHAPTER V.

SECTION I.

CHOICE OF A POSITION.

1. Fields of battle seem to have increased, in size, in every way. In length through the extension of modern armies and the difficulty of turning movements. In breadth, on account of the great range of present arms, which necessitates commencing an action at a greater distance than formerly. The theatre of action will therefore comprise immense areas, of which the battle-field of Solferino may be taken as an example. Formerly armies often observed one another for several days, before coming to close quarters, because they had not completed their concentration. At Austerlitz, Napoleon waited for Davout and Bernadotte. Now, however, armies always marching concentrated and rapidly advancing towards one another, will rarely remain in close proximity, without an immediate engagement. The time at the disposal of the general-in-chief, for making his dispositions, will of necessity be very short. Tactical combinations, based on the study of large areas and with but a short time to consider the matter, naturally will become more complicated. The general-in-chief will find tactics less easy, whilst the contrary will prevail in strategy.[1]

2. A thorough study of the ground will be indispensable:—

(1) When wishing to find positions which will prevent the enemy benefiting by the mobility and range of his guns, and which will not allow him to employ his cavalry, to drive in the advanced posts and make an offensive reconnaissance.

(2) In order to acquire a knowledge of the whole field of battle embracing very large areas.

(3) To determine the best positions for important batteries.

(4) When looking for cover, for skirmishers; for the first and second lines, as well as for the reserves.

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[1] Ambert.

(5) When cavalry is to charge troops, supported by artillery, in order to shelter the former from fire, as long as possible.

(6) In the attack and defence of batteries.[1]

3. When the lines of operation of hostile armies are identical in direction, it will be a grave error to take position on a front oblique to that line for the sake of advantageous ground. For every degree of deviation of the front from a direction perpendicular to the line of retreat offers, proportionately, a flank to the approaching enemy, and withdraws the troops on the other flank from the points of collision. In fact, the relations of the lines would be those produced by the successful counterstroke against a turning movement.[2]

4. There are two kinds of positions, the strategic and the tactical. The latter again are subdivided. In the first place, there are intrenched positions occupied to await the enemy under cover of works more or less connected—in a word, intrenched camps. * * Secondly, we have positions naturally strong, where armies encamp for the purpose of gaining a few days' time. Third and last are open positions, chosen in advance to fight on the defensive. The characteristics to be sought in these positions vary according to the object in view: it is, however, a matter of importance not to be carried away by the mistaken idea, which prevails too extensively, of giving the preference to positions that are very steep and difficult of access—quite suitable places, probably, for temporary camps, but not always the best for battle-grounds. A position of this kind, to be really strong, must not be only steep and difficult of access, but should be adapted to the end had in view in occupying it, should offer as many advantages as possible for the kind of troops forming the principal strength of the army, and, finally, the obstacles presented by its features should be more disadvantageous for the enemy than for the assailed. For example, it is certain that Massena, in taking the strong position of the Albis, would have made a great error if his chief strength had been in cavalry and artillery; whilst it was exactly what was wanted for his excellent infantry. For the same reason, Wellington, whose whole dependence was in the fire of his troops, made a good choice of position at Waterloo, where all the

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[1] Ambert.

[2] Hamley, Part VI., Chap. IV.

avenues of approach were well swept by his guns. The position of the Albis was, moreover, rather a strategic position, that of Waterloo being simply a battle-ground. The rules to be generally observed in selecting tactical positions are the following:—

(1) To have the communications to the front such as to make it easier to fall upon the enemy at a favourable moment, than for him to approach the line of battle.

(2) To give the artillery all its effect in the defence.

(3) To have the ground suitable for concealing the movements of troops between the wings, that they may be massed upon any point deemed the proper one.

(4) To be able to have a good view of the enemy's movements.

(5) To have an unobstructed line of retreat.

(6) To have the flanks well protected, either by natural or artificial obstacles, so as to render impossible an attack upon their extremities, and to oblige the enemy to attack the centre, or at least some point of the front. This is a difficult condition to fulfil; for, if an army rests on a river, or a mountain, or an impenetrable forest, and the smallest reverse happens to it, a great disaster may be the result of the broken line being forced back upon the very obstacles which seemed to afford perfect protection. This danger—about which there can be no doubt—gives rise to the thought that points admitting an easy defence are better on a battle-field than insurmountable obstacles.*

(7) Sometimes a want of proper support for the flanks is remedied by throwing a crotchet to the rear. This is dangerous; because a crotchet stuck on a line hinders its movements, and the enemy may cause great

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* The park of Hougoumont, the hamlet of La Haye Sainte, and the rivulet of Papelotte, were for Ney more serious obstacles than the famous position of Elchingen, where he forced a passage of the Danube, in 1805, upon the ruins of a burnt bridge. It may perhaps be said that the courage of the defenders in two cases was not the same; but, throwing out of consideration this chance, it must be granted that the difficulties of a position, when properly taken advantage of, need not be insurmountable, in order to render the attack abortive. At Elchingen the great height and steepness of the banks, rendering the fire almost ineffectual, were more disadvantageous than useful in the defence.

loss of life by placing his artillery in the angle of the two lines prolonged. A strong reserve in close column behind the wing to be guarded from assault, seems better to fulfil the required condition than the crotchet; but the nature of the ground must always decide in the choice between the two methods. * * * *

(8) We must endeavour in a defensive position, not only to cover the flanks, but it often happens that there are obstacles on other points of the front, of such a character as to compel an attack upon the centre. Such a position will always be one of the most advantageous for defence, as was shown at Malplaquet and Waterloo. Great obstacles are not essential for this purpose, as the smallest accident of the ground is sometimes sufficient: thus, the insignificant rivulet of Papelotte forced Ney to attack Wellington's centre, instead of the left, as he had been ordered.[1]

5. The most important mistake which the Duke of Wellington comcommitted, as to the actual fighting of the battle of Waterloo, was his overlooking the vast importance of retaining possession, at any cost, of the farm and enclosures of La Haye Sainte. This farm was at the very centre of his position, and was on the great chaussée by which the French army so easily approached the position; these circumstances, and Napoleon's known modes of attack, indicated that the possession of this farm would be of the utmost value. Napoleon had from the first seen the vast importance of his possessing himself of this part of Wellington's field of battle, as is proved by his massing so very large a force immediately opposite to it, and by his establishing a battery of seventy-four guns to bear upon it. * * * *

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That Napoleon from the first attached much more importance than Wellington did to the possession of that part of the Anglo-Allied position at which La Haye Sainte stood, is fully proved by his having prepared such immense means for its attack; while Wellington occupied the ground weakly, and paralysed the defence of the buildings by withdrawing from them the workmen and tools that would have been required to put them into a state of defence. In this instance, as in that of the dispositions of the armies when the operations of the campaign were commencing, Napoleon's general views seem to have been superior to those of Wellington; but in both cases Wellington shewed great superiority in execution.[1]

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[1] Jomini, Chap. IV., Art. 30.

6. The most advantageous ground in general will be • such as obstructs the assailant, but not the defender. The crest of slopes favourable to the fire of artillery and the movements of cavalry, and overlooking a plain along which the enemy's troops must advance under fire, with their designs apparent, to ascend ground the inclination of which is itself an obstacle, will be such a position as a general anxious to meet his adversary will select. When the front of an army is covered by a river, the destruction of the fords and bridges will entail the same general consequences, as the occupation of unscaleable heights, except that in this case the conflict will be rather one of artillery than of infantry. But by preserving the passages, the power of counter-attack is retained, and the river then bestows this advantage on the defender, that the points where the assailant's columns must advance being limited in number, and previously known, preparations may be made to meet with a concentrated opposition the different attacks. But, on the other hand, if the assailant's bank screens his movements, the chance of being turned, as Soult was turned by Beresford at Orthez, will always exist. An impassable obstacle, such as a piece of water, a ravine, or a marsh, might extend *partly* along the front of a position. To extend the line of troops along the rear of the impediment, would be to repeat the fault of the French commander at Ramilies, and to give the enemy the opportunity of falling in full force on the remainder of the line. But though either cavalry or infantry thus posted would be paralysed, yet guns might play across the impassable space with full effect, and would not only be secure from capture, but, if the obstacle were a marsh, would suffer less from an opposing fire, since the shot or fragments of shell which might strike in front would not rebound from the soft soil. To occupy a position which *is perpendicularly intersected by an impassable obstacle*—a deep ravine, stream, lake, or marsh,—would be to divide the army voluntarily into two isolated parts, and give the enemy the option of bringing his mass against either. Such was the error of Durando's

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[1] Kennedy.

position before Mortara in 1849. But if such an obstacle, after approaching the front of the position, *ceases there*, it will be of great advantage to the defence, for the assailing forces will be divided by it; while the defenders can bring their main strength to either side. When the ground in front of a position is intersected by artificial obstacles, such as strong walls or ditches; those parallel to the front may be advantageous to the assailant, affording cover to his skirmishers and rallying-points for broken columns; but those perpendicular to the front will be detrimental to him, by dividing his attacking forces, without sheltering them from fire. However, advantageous a position may otherwise be, if its immediate front be thickly wooded, or so broken as to conceal the enemy's movements, it will scarcely be tenable, for, not only will the defender's special advantage, that of firing on the assailant's columns during their advance, be lost, but the enemy may pass his troops on any point he selects, undiscovered; and he will thus possess the power of attacking that point with superior numbers unshaken by fire. One of the first conditions of a good position is, therefore, that it shall afford a full view of the enemy's movements within effective cannon range. Certain defensible points, such as a hamlet, village, farm, church, and churchyard with its wall, or a grove, within distance of easy support in front of the line of battle, will generally increase its strength in a very material degree. Strong in itself, and its garrison constantly reinforced from the line, while the ground in front is swept by batteries, such a point is difficult to attack directly; the enemy cannot attempt to surround it, without exposing the flank and rear of the attacking troops; and to pass it by, in order to reach the position, the assailants must expose their flank to its fire. If several such points exist, they support each other, isolate the enemy's columns of attack, and force him to expend his strength in costly assaults upon them; in fact, they play the part of bastions in a line of fortification. But it is essential that they should be within supporting distance (short cannon-range), and easy of access from the rear; failing these conditions, they had better be destroyed, if possible, as defences, and abandoned to the enemy. A remarkable illustration of this is afforded by the Austrian position at Solferino. Their general line stretched through Pozzolengo and Cavriana; by far the strongest part of that field, taken singly, is the hill of Solferino, commanding all the neighbouring country, crowned with strong buildings, and flanked by precipitous slopes. But the back of the hill is so steep and scarped that it can be ascended only by a single winding path; and between it and the high ground of Cavriana in rear, stretches a width of nearly two miles of broken ground. The brigades that occupied this formidable outpost, maintained themselves long against the direct attacks of the French; but when the assailants turned it, part of the garrison was cut off, and both troops and post were lost. It would have been far better to leave it unoccupied, and place its garrison in the general line at Cavriana; or else, to advance the whole of the line of battle, making the hill the centre, and connecting the wings with it, so that the Austrian left wing would have occupied the ground on which the French are represented * . Another case in point is the line of slightly fortified posts, occupied by the Turks in front of Balaklava. Their distance from the army was far beyond cannon-range, and they were captured in a moment, with their armament, in presence of the Allies, at the first attack. When well placed, points of this kind in front of the line enable the defender to mass his troops at the proper time for a counter attack, and launch them with a comparatively short distance to traverse against the enemy. And should they, feebly occupied and defended, be captured, they give to that enemy the same advantages for renewing his attack. For these reasons most great battles are marked by bloody episodes, where advanced posts like Hougoumont, Solferino, Ligny, and the two Arapiles at Salamanca, are the objects of contention. Yet, because these attacks are so costly, great commanders, like Frederick and Napoleon have avoided them whenever such evasion was possible, preferring to drive out the garrisons by a concentrated fire of artillery; or, if the posts stood far asunder, to push the attacking columns in between, masking them meanwhile by demonstrations.[1]

7. The impediments to the march of an enemy to attack your position in front may be of different descriptions:—

(1) The most effective is a large river or impassable marsh, running parallel to your front.

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[1] Hamley, Part VI., Chap. III.

(2) Villages, which may in a short time be converted into strong posts, and occupied by your troops, so situated that the enemy must take them before advancing beyond them.

(3) Any favourable ground (naturally or artificially strong, or both) on the line of the enemy's advance, the occupation of which by your troops will delay his march.

In all the above cases, it is necessary that the obstacles to the march of the enemy, shall be under the full fire of the guns of your position, otherwise the troops posted for their defence may be captured.[1]

8. A village, not intended to be occupied, and which would be useful to an enemy, ought to be burnt and destroyed as far as possible. The number of villages, which have played an important part in battles, is very considerable.[2]

9. The principal obstacles that are met with and of which advantage can be taken, are eminences, declivities, dried up water-courses, woods, villages, houses, hedges, ditches, marshes, ponds, water-courses. * *

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As examples of a good defence of accessible high ground, there are Solferino and Cavriana. They were occupied by the Austrians in a formidable manner, and before they were taken, cost long and bloody struggles. * * * * * When the ascents of a hill are steep, they should if possible be swept by lateral fire. It will always be necessary, to watch them carefully, bearing in mind that where a goat can climb, a soldier is able to pass. This neglect of precaution, cost the Russians dearly at the Alma. The defence of these descriptions of heights varies, according to the summits being formed by a simple crest or when crowned with a plateau. In the former case, the English during the Peninsula war in Spain, acted, thus, when defending them: they permitted the enemy to ascend for a certain time the hill; afterwards quickly crowned the crest, fired on their opponents, tired after a difficult march and charged with the bayonet, but without following far. In the case of a plateau, it is better to let the enemy reach the summit, and whilst he attempts to form, fire heavily on him, and afterwards attack him. * * * * *

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[1] MacDougall. [2] Prevost.

A wood forms excellent cover, numerous riflemen and even field pieces, will act with effect on the ground in front, from the edge of the wood. To prevent access to it, trees are felled to form salient and re-entering angles.[1] * * * *

10. The position taken up by an army to wait for an attack is usually elevated, commanding and overlooking the front, and presenting a waving line of salient ridges or knolls, with re-entering sweeps or valleys. These may be adjusted to act as so many fronts of fortification; the projections having the effect of bastions, while the retired intervals may be considered the curtains; the parts corresponding to the flanks presenting clearly the best sites for the guns.[2]

11. A position cannot be too strong; lose no opportunity of strengthening it by means of field works. Napoleon says:—"The natural positions which are generally met with cannot protect an army from the attacks of a superior force without the aid of art." Towards the end of the Peninsula war, no position was taken up without intrenching; first, the guns were covered, then the weakest parts of the line.[3]

12. * * The best thing for an army standing on the defensive, is to know *how* to take the offensive at a proper time, and *to take it*. Among the conditions to be satisfied by a defensive position has been mentioned that of enabling an easy and safe retreat; and this brings us to an examination of a question presented by the battle of Waterloo. Would an army with its rear resting upon a forest, and with a good road behind the centre and each wing, have its retreat compromised, as Napoleon imagined, if it should lose the battle? My opinion is, that such a position would be more favourable for a retreat, than an entirely open field; for a beaten army could not cross a plain without exposure to very great danger. Undoubtedly, if the retreat becomes a route, a portion of the artillery left in battery in front of the forest would in all probability, be lost; but the infantry and cavalry and a great part of the artillery could retire just as readily as across a plain. There is, indeed, no better cover for an orderly retreat than a forest,—this statement being made upon the supposition that there are at least two good roads behind the line, that proper measures for retreat have been taken

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[1] Prevost.

[2] Sir J. F. Burgoyne.

[3] MacDougall.

before the enemy has had an opportunity to press too closely, and, finally, that the enemy is not permitted by a flank movement to be before the retreating army at the outlet of the forest, as was the case at Hohenlinden. The retreat would be the more secure if, as at Waterloo, the forest formed a concave line behind the centre; for this re-entering would become a place of arms to receive the troops and give them time to pass off in succession on the main roads.[1]

13. "At Waterloo,"—Wellington had chosen his battle-ground deliberately with his back to the forest of Soignies, a wood everywhere traversable by infantry, and with several roads leading through it from the rear of the position. Napoleon, revenging himself at St. Helena for his defeat by criticising his adversaries, asserted that this position was so badly chosen as to render retreat from it impossible, which fact alone, twice that day, prevented the English general from retiring! The latter part of this statement needs no comment to those who know the story of the battle; indeed, modern French historians do not attempt to follow the Emperor here. The propriety of fighting with the back to such a wood as that of Soignies is another matter, one apparently in this case of theory; and hence we cannot do better than quote a short note upon it from Jomini's narrative, since that writer is the admitted head of the great school of theorists who admire Napoleon's genius.—This is one of the gravest questions of the grand tactics of battle. I have discussed it in my "Précis of the Art of War," *and incline to the opinion of Wellington against that of Napoleon.*[2]

14. Previous to the Battle of Königgrätz, Benedek had * assembled * all his available troops, and they may be reckoned, after due allowance for previous losses, at 180,000 men and 600 guns. Their front was towards the north-west; all the troops faced the Bistritz; none were put in line towards the north-east, in which direction the Crown Prince's army lay; but the length of front was so short compared with the number of men on the ground, that plenty could be spared to fight on the flanks without any risk of weakening the centre. The ground was of an irregular undulating character, ridges and valleys alternating with one another, and presenting no marked features to catch the eye, except that to a

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[1] Jomini, Chap. IV., Art. 30.

[2] Chesney, Lect. VI.

spectator in the Prussian 1st Army, a knoll near Chlum appeared as the highest point of the line. A good straight road leading to Königgrätz crossed the Bistritz at Sadowa, and passed near the knoll. Two miles above Sadowa the Bistritz made a sudden bend, the line of its course tending to the north-west instead of the north-east; and opposite to this bend, near Horenowes, was the Austrian right flank, thence the line ran parallel to the Bistritz for about six miles, as far as Prim, with outposts occupying the village of Nechanitz. There were bridges at several places over the Bistritz, but it was not easily passable elsewhere, and the ground near it was swampy.[1]

15. The position taken up by Feldzeugmeister Benedek in front of Koniggratz, has been severely criticised. It does not, however, appear that the river in his rear was any disadvantage to him, although his army was defeated, and had its flank turned by a strong force. The Austrian commander took the precaution to throw bridges over the river. With plenty of bridges, a river in rear of a position became an advantage. After the retreating army had withdrawn across the stream, the bridges were broken, and the river became an obstacle to the pursuit. Special as well as general conditions also came into play. The pursuing Prussians could not approach with impunity the heads of the Austrian bridges. The heavy guns of the fortress scoured the banks of the river both up and down stream, and, with superior weight of metal and length of range, were able to cover the passage of the Austrians. The position was otherwise acknowledged on all sides to be a good one, carefully chosen; and though the villages were not completely barricaded and loopholed, this omission was probably due to the extreme rapidity of the movements of Prince Frederick Charles. A great disadvantage was the fact that the presence of two opponent armies, acting from divergent bases against the Austrian position caused, as all such conditions always must cause, Feldzeugmeister Benedek to fight with his army drawn along two sides of an angle. One side was from Prim to Maslowed, the other from Maslowed to Lochenitz.[2] • • • • •

16. Napoleon, when forced to retire, 'after his defeat at Leipzig,' had been severely punished for his imprudence in risking a general action, with not only a river, but a conflux of five unfordable streams,

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[1] Lieut.-Col. Miller.

[2] Hozier, Vol. I.

immediately in rear of his position, by the loss of one half of his army and the hopeless discomfiture of the remainder. Yet the same remarkable and complicated barrier now befriended him, by effectually covering his retreat, and giving to those of his troops who had been fortunate enough to pass it, a start of four-and-twenty hours before their pursuers.[1]

17. It should be remembered, that a position ought to afford every facility to the movement of the troops, and openings of communication should accordingly be made through the hedges, ditches, boggy ground, &c. Negligence of these precautions led to the defeat of the Austrians at Dresden, 27th August, 1813. Prince Schwartzenberg having extended the left of his army beyond the narrow valley of Plauen, which runs along high-peaked mountains, Napoleon ordered a strong force to occupy the bridge of Plauen, the only point of communication between the left and centre of the Austrians, and cut the former to pieces. Farms and country seats, isolated houses, which are often found on the slopes of hills, are excellent means of defence to the approaches of a position. Villages are excellent supports; their winding streets, their general irregularity, their orchards, &c., render it difficult for an enemy to scan them quickly; in plains that are wanting in natural obstacles, they are particularly useful.[2]

18. The slightest negligence of which the weaker party may be guilty, in the choice of a position or the manner of occupying it, might prove fatal in the event of its being attacked. We have still to remember that in the defensive, (the ordinary attitude of the weaker party) advantageous positions rarely present themselves, and that they are the more difficult to find, from the circumstance that we are not masters of our own movements. It therefore becomes imperatively necessary to have recourse to the assistance of art, in order to remedy the natural defects of those positions, which the compulsory duties of a defending army compel it to take up, so as to arrest the progress of the enemy and impede his march.* The intrenchments must be of such a kind that the army behind them may not be reduced to a state of siege. Full scope should be left to the genius of the officer in command, as well as to his courage and skill in manœuvring his troops.

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* Guibert. [1] Cathcart. [2] Jervis.

We should, therefore, avoid continuous intrenchments, and should only fortify certain points opposite those at which the enemy may have to defile, as well as those points on which only a small number of troops, or troops inferior in courage and discipline to the rest of the army, can be bestowed; whilst, on all bare and unprotected points, the flower and strength of the army should be opposed to the enemy, and should vigilantly await the first opportunity of assuming the offensive, at the first false step which the enemy may be guilty of.*[1]

Position of the Federal Army at Gettysburg.

19. The position taken up by the Federal Army, at the battle of Gettysburg, is thus described:—The right centre of the Federals was on a steep hill just south of Gettysburg, of which place it forms the cemetery. The same ridge sweeps away in a horse-shoe form to the south-east and south-west, forming a curve about three miles long. Rising much more at some points than others, it everywhere commands the valley round its north side, and into which it falls in some places too abruptly for artillery to sweep the portions at its foot. About the cemetery there is much bare ground, but the Federal engineers had here added considerable cover by their trenches to that of the stone walls already existing. The right shoulder of the ridge, extending somewhat eastward of this part, was high, and curved sharply to the south, taking a line nearly perpendicular to the front; and this flank was well protected by the special difficulty of its slope, which was rocky and wooded, and ended in a brook, known as Rock Creek, one of the upper forks of the Monocacy, which coursed along its front. About a mile to the Federal left of the cemetery, the swell rose again, steep, high, and bare at the top, in a sugar-loaf form, and took the name of Round Top Hill. Between this point,—the left centre of Meade's line,—and the cemetery, there was much wood along the crest, of which good cover had been made by felling trees. The valley in front of the whole centre, as also of the left,—where the hill in its western bend near Round Top, though continuous, became less sharply defined,—was open cultivated land, in a few places less than half-a-mile across, and swept effectually by the Federal batteries. The line of the hills had

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* De Rocquancourt.

[1] Leady.

everywhere a good slope to the rear, giving excellent cover to the reserves of the army, and allowing the ammunition and other supply-waggons to come without danger into the hollow thus formed in rear of the centre. This slope, affording safety to all the troops not in first line, did away with much of the objection which would otherwise have attached to the position, as being too crowded for the mass of troops, 70,000 strong, which was designed to hold it. Its only marked defect lay in the extreme abruptness of portions of the front preventing them being searched by the fire of the defenders; but this was directly counterbalanced by the difficulty to the assailants of the ascent, which, in such places, was only to be accomplished in such a scrambling fashion, as to deprive their ranks of all approach to order.[1]

Russian position at the Alma.

20. The Russian position at the Alma, was very powerful against a front attack: they occupied, in masses, the bold heights overlooking the river Alma, the village of Bourliouk, and the bridge and fords on the main road leading to Sebastopol; the same ridge, which is very steep, continues down to the sea about two miles distant. The right bank of the Alma, over which the allies advanced, was low, flat, and open, and thoroughly seen from the heights for a great distance. The British army, taking the left, advanced upon the main feature; and the French on the right, gained the heights between that and the sea to turn the position.[2]

SECTION II.

FORMATION OF THE LINE OF BATTLE.

1 The art of disposing the troops on a given ground, consists in taking advantage of whatever favourable accidents that ground may present, and in avoiding the unfavourable ones, which cannot be done

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[1] Campaigns in Virginia, &c.

[2] Sir J. F. Burgoyne.

without deviating from the primitive order of battle. At one moment several parts of the line must be advanced, so as to occupy a rising ground, a wood, or a village; at another, other portions of the line must be made to draw back, in order to avoid a marsh, or ravine; while at other times, a gap must be left, in order to avoid hollows. Another cause tends to prevent uniformity; this is, the necessity of adapting the different arms to the kind of ground the nature of which best befits them. The capacity for appreciating the strong and the weak points of a territory; the ability to profit by the first, and to avoid the second, so as to assimilate and blend with them the order of battle; the science of amalgamating the different arms—in short, the art of choosing such positions as constitute a field of battle advantageous to the defenders, and difficult to the assailants, forms an important branch in the modern science of war.[1]

2. From the nature of the two things, "*lines of battle* and *orders of battle*," it is evident that the *line of battle* belongs especially to defensive arrangements; because an army awaiting an attack without knowing what or where it will be, must necessarily form a rather indefinite and objectless line of battle. *Order of battle*, on the contrary, indicating an arrangement of troops formed with an intention of fighting while executing some manœuvre previously determined upon, belongs more particularly to offensive dispositions. However, it is by no means pretended that the line of battle is exclusively a defensive arrangement; for a body of troops may in this formation very well proceed to the attack of a position, while an army on the defensive may use the oblique order or any other.[2] * *

3. A general-in-chief, should ask himself frequently in the day—What should I do, if the enemy's army appeared now in my front, or on my right, or my left? If he has any difficulty, he is ill-posted, and should seek to remedy it.[3]

4. A good way of judging, how to occupy a defensive position, is to get in front of it and consider how it should be attacked. The defensive force can then be disposed so as to meet the probable attack.[4]

5. It should be laid down as a principle, never to leave intervals by which the enemy can penetrate between corps formed in order of battle, unless it be to draw him into a snare.[5]

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[1] (Rogniat) Lendy.
[2] Jomini, Chap. IV., Art. 30.
[3] Napoleon.
[4] W. C. E. Napier, Sect. II.
[5] Napoleon.

6. Copying from the Romans, and in accordance with sound principles, an army when drawn up for battle is formed in three distinct lines, one line in front, the second in rear of it, and the third in rear of all; each destined to act at different times: the first line to commence the action, the second to furnish an immediate support and give confidence to the first, to assist in rallying it, and, if necessary, to take its place. The third line in rear of all, which is generally termed the reserve, is never kept deployed. It is not always necessary even to deploy the second, and on some grounds it may be considered preferable to keep it formed in columns at deploying distance; but great care must be taken in such case, that the features of the country afford cover for it, as otherwise the consequences may be very disastrous. At the battle of Moscow, a Westphalian brigade in the second line, lost five hundred men in ten minutes, being in column, whilst the line in front did not suffer nearly as much, although engaged with the enemy.[1]

7. The object of the second line being to feed, reinforce, and relieve the first, it should be near enough to render prompt support; but if very close it would be struck by cannon-shot which had passed through the first line. By interposing a certain space, shot from the enemy's batteries, which, coming from a distance of 800 to 1400 yards, descend at an angle upon their object, would often, whether striking the first line, or falling a little short of it, or falling a little behind it, be carried by the rebound clear of the ground. An interval of from 200 to 300 yards will best secure on level ground the two objects of supporting the first line, while depriving the enemy's guns of the opportunity of inflicting double losses. The column formation is so greatly superior to the line for facility of manœuvre, whether for a direct advance, change of front, or movement to a flank, that the second line is seldom deployed, except for instant support of the first against a formidable attack. Battalions at deploying intervals, in double or single column of companies, will be the most convenient formation for the second line.[2]

8. "Seek the field of battle," says Guibert, "follow the order of a real engagement, and you will see that at its very commencement the primitive order immediately vanishes; that encampments, marches, and engagements are all absolutely related to the ground, and to

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[1] Lieut.-Col. Graham.

[2] Hamley, Part VI., Chap. III.

circumstances. You will no longer see the cavalry irrevocably fixed at the wings; nor will these wings retain the exact precision of their balance, or their arrangement in two lines. You will see that everything changes, varies, and undergoes modifications, according to time, place, and circumstance.[1]

9. Supposing two or more divisions to be assembled in line of battle, with a proportionate body of horse, if the cavalry were placed between them in column, it could not deploy for action without overlapping on each side a large part of the infantry and masking its fire. If (occupying the same situation) it were deployed between the infantry divisions, a large part of the line would thus have no fire to oppose to an attack of infantry. The enemy's battalions might therefore fire with impunity on the central mass of cavalry, who must either retire, leaving a gap in the line, and exposing the flanks of the divisions, or must charge the opposing infantry in front, which will generally be a doubtful enterprise. In any case it must find great hindrance to its most effective mode of action, namely, against the flank of either infantry or cavalry; and its defeat would lay bare the centre of the line. For these reasons, when the ground is suitable, part of the cavalry is disposed in rear of the flanks of the line, where its front is free for deploying or changing direction, and where it covers and watches over the weak points,—namely, the flanks of the line of battle. Such being the general rule, the course of an action nevertheless often gives opportunities for cavalry to operate to advantage between the divisions of infantry. For instance, a hostile column retreating in disorder from an ineffectual charge, or a hostile line engaged in a conflict of rifle-fire, the flank of which might be imperfectly covered, or a line of skirmishers far from their supports, would give openings for a comparatively small force of cavalry to act with decisive effect. In each corps of two or three divisions, a few squadrons might therefore be advantageously posted, so as to act between the divisions; and their proper place would be with the second line, the space necessary for their advance being opened by wheeling back some companies of the first line at the proper moment; or, if placed in rear of the batteries, they may issue through the perpendicular interval between the guns and the infantry.[2]

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[1] Lendy. [2] Hamley, Part VI., Chap. III.

10. One portion of the old method may still be employed; and if, by way of example, it may not be regarded as a fundamental rule to post the cavalry on the wings, it may still be a very good arrangement for an army of fifty or sixty thousand men, especially when the ground in the centre is not so suitable for the evolutions of cavalry as that near the extremities. It is usual to attach one or two brigades of light cavalry to each infantry corps; those of the centre being placed in preference to the rear, whilst those of the wings are placed upon the flanks. If the reserves of cavalry are sufficiently numerous to permit the organization of three corps of this arm, giving one as reserve to the centre and one to each wing, the arrangement is certainly a good one. If that is impossible, this reserve may be formed in two columns, one on the right of the left wing, and the other on the left of the right wing. These columns may thus readily move to any point of the line that may be threatened.[1]

11. Much of the influence of artillery is due to the moral effect produced by the rush of the projectiles overhead. It is inexpedient, therefore, except in desperate circumstances, to place guns in rear of other troops. Cavalry certainly, infantry probably, would be rendered unsteady by the cannonade. Neither is it desirable to place infantry in rear of artillery, for the guns should always be relied on to protect their own front, and infantry in rear of them would not be in the best position for protecting the flanks, which are the weak points, while the fire of the small arms would be masked till the enemy had penetrated the battery; and an increased depth of formation would be offered to the enemy's projectiles. Nor should infantry and artillery be on the same alignment, for one important function of the guns will be to protect the front of the infantry, which they will, in that case, do but inadequately; nor could the guns readily throw back a flank in echelon; so that, on approaching within a certain distance of the infantry, the enemy would no longer be exposed to artillery fire. The infantry therefore will best give and receive support if posted in *rear of the flanks* of the line of guns. The intervening distance must depend on circumstances. Should the ground in front be occupied by skirmishers, the guns may advance to the supports; otherwise they

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[1] Jomini, Chap. VII., Art. 43.

may be 50 or 100 yards in advance of the infantry. Where infantry is covering the exposed flank of guns, it should be posted about fifty yards in rear of the flank of the battery. When on the defensive the guns will direct their fire on the attacking columns; but when supporting an attack of infantry, though a part of them will properly be directed on the enemy's infantry, yet a proportion should also, by firing on the enemy's artillery, seek to diminish its effect on the advancing columns.[1]

12. Artillery should always be placed in the most advantageous positions, and as far in front of the line of cavalry and infantry, without compromising the safety of the guns, as possible. Field-batteries should command the whole country round, from the level of the platform. They should, on no account, be masked on the right and left, but have free range in every direction.[2]

13. Batteries, whatever may be their general distribution along the defensive line, should give their attention particularly to those points where the enemy would be most likely to approach, either on account of the facility or the advantage of so doing. The general of artillery should, therefore, know the decisive strategic and tactical points of the battle-field, as well as the topography of the whole space occupied. The distribution of the reserves of artillery will be regulated by these.

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Batteries should always have supports of infantry or cavalry, and especially on their flanks. Cases may occur where the rule may be deviated from. Wagram is a very remarkable example of this.[3]

14. If guns are on an unsupported flank, they should be protected by cavalry in rear. A half-battery should also be in echelon on the outer flank, ready to bear on troops attacking that flank, without diminishing the fire of the front. If impassable obstacles to cover the flank do not exist, a wood, or farm buildings, occupied by infantry, will give great security to guns posted near the extremity of the line.[4]

15. Batteries should not be placed on stony ground, as the enemy's shot make the stones fly in all directions, often causing considerable damage; marshy ground in front of a battery is good, should the latter

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[1] Hamley, Part VI., Chap. II.

[2] Napoleon.

[3] Jomini, Chap. VII., Art. 46.

[4] Hand-Book.

not be likely to advance, as the shot will either penetrate or ricochet but little from it; undulating ground prevents the enemy in a great measure from observing the grazes of his shot, and thereby rectifying his fire. No position should be occupied by artillery from which it could not retire with facility.[1]

16. In taking up a position, a battery should avail itself of all inequalities of the ground, for the shelter of its pieces and gunners; or for its limbers and caissons at least. As far as is possible, guns should be kept hidden from the enemy till the moment of opening on him. They may be masked by the ground, or other cover, natural or artificial, or by troops placed in front of them.[2]

17. In a defensive position, the guns of the heaviest calibre should be posted on the weakest points of the line, and on those from whence the enemy can be discovered at the greatest distance; and from which as much as possible of his front may be seen. Those heights on which the enemy in advancing may rest his flanks, and those from whence he may be fired on obliquely, must also be secured by the largest calibres. If an offensive position, the guns of the heaviest calibre should be placed in such situations as will render them available without difficulty, for any operations in advance. A spot selected for a battery should be one which does not present any obstacles to the ulterior movements, and can take the enemy in the line of his greatest dimensions. The most elevated situations are not the best; the greatest effect may be produced from a vertical height, equal to about *one hundredth* of the range.[3]

18. Slightly salient, and moderately commanding points of the general line, should be selected for the divisional guns, which should be placed in the intervals of the general line. The saliency of such points greatly increasing the lateral range, enables a converging fire to be brought to bear upon columns of attack.[4]

19. In the different phases of an action, one arm is wont to be of predominant importance, and it is by this one that the other arms must direct themselves, with reference to their positions. In general, the advance and positions of the infantry and cavalry determine the position of action for the artillery, especially as long as the fire of the

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[1] Owen. [2] Lippitt. [3] Hand-Book. [4] *Ibid.*

last holds the character of being preparative and of acting in support; there are, however, circumstances in which this is not the case, and this invariably occurs when the effect of the artillery is of the last importance, as in defile-actions, or where the decision of a battle is to be brought about by large masses of that arm.[1]

Reserves.

20. On account of the great range of guns and want of shelter, reserves will frequently be obliged to be left some distance in rear. In this case, should a line of battle be seriously menaced at any point, the reserves could not be brought up in sufficient time. It will be therefore absolutely necessary to connect the reserves and the line of battle. Recourse will be had to cavalry associated with artillery. Echeloned in rear of the line, and under cover, it will nevertheless be placed sufficiently near to allow it quickly to take part in the action, when required. Such was the part played at Austerlitz by Boyer's division and the cavalry of the Guard, strengthened by two light batteries of the Guard and a battery of the 1st corps. These squadrons will also be made use of, for supporting the batteries, assaulting those of the enemy, taking advantage of false movements, rapidly taking up a position and effecting a defeat. This cavalry, associated with artillery, will, in fact, take advantage of short momentary chances, by which infantry and artillery, left to themselves, would be unable to profit. Such will be the part, entrusted to the cavalry of a corps d'armée.[2]

21. Frederick the Second, changed the system of war, and gave mobility to his army for manœuvring before the enemy, but his genius did not carry him so far, as to foretell the knowledge and use of reserves. During the wars of the Revolution, armies had but insignificant reserves.

"I have seen," says General Jomini, "what was in 1796, pompously called the cavalry reserve of the army of the Rhine, and it barely formed one feeble brigade (1500 horse). Ten years after, I have seen similar reserves 15,000 or 20,000 strong; so much have ideas changed and armies increased." Napoleon, then, was the author of reserves, and to him is equally due the organization of the Cuirassiers in France.

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[1] Taubert. [2] Ambert.

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In all the campaigns of the empire there were reserves; there was no campaign without a *strategic reserve,* nor a battle without a *tactical one.* The marshals, the generals commanding divisions, all acted upon this system.

"The art of properly fighting a battle," says Marmont, "lies especially in the judicious employment and timely use of reserves; the general who, in a contested battle, has at the end of the day fresh troops at his disposal, when his adversary has none, is almost certain of victory." Gouvion Saint Cyr reports a conversation he had with the emperor: "It is only at the end of the day," said Napoleon, "when I see the enemy much pressed has nearly come to the end of his resources, that, collecting all my reserves, I hurl upon the field of battle a strong body of infantry, cavalry, and artillery. Quite *unexpected* by the enemy, it has a *decisive effect;* by this means I have almost always obtained the victory."[1]

22. Formed, in deep columns, the reserves offer an easy mark for artillery. Projectiles of large calibre might reach them, and cause great loss. No opportunity of sheltering them behind rising ground, from view of the enemy, must be neglected. Often, indeed, they may be brought near a point from which they could immediately enter the line of battle; but in this case they must be perfectly under cover.[2]

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[1] Ambert. [2] *Ibid.*

CHAPTER VI.

SECTION I.

ORDERS OF BATTLE.

1. A battle is a dramatic act, which has its commencement, middle, and end. The order of battle taken by the two armies, and their first movements towards coming into action constitute its *prologue*; the countermoves made by the army attacked answer to the *development of the plot*; these necessitate new dispositions, and bring about a crisis whence springs the final result or *catastrophe*.[1]

2. When an army is inferior in number, inferior in cavalry, and in artillery, it is essential to avoid a general action. The first deficiency should be supplied by rapidity of movement; the want of artillery by the nature of the manœuvre; and the inferiority in cavalry by the choice of position. In such circumstances, the *morale* of the soldier does much.[2]

3. In all cases before deciding on the order of battle, it will be necessary to fix on the points of attack. On the selection of these will generally depend the degree of success in case of victory.[3]

4. If the line of retreat lead to the rear from a point near the centre of his line, that circumstance need exercise no influence on his choice of the point of attack. But if it be attached to either flank, then his plan must include that circumstance among his data.[4]

5. It must be admitted that the assailant generally has a moral advantage over the assailed, and almost always acts more understandingly than the latter, who must be more or less in a state of uncertainty. As soon as it is determined to attack the enemy, some order of attack must be adopted; and that is what I have thought ought to be called *Order of battle*. It happens also quite frequently that a battle must be commenced without a detailed plan, because the position of the enemy is not entirely known. In either case it should be well understood that there is in every battle-field a decisive point, the

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[1] (Napoleon's Memoirs) Ambert.

[2] Napoleon.

[3] Hamley, Part VI., Chap. IV.

[4] MacDougall.

possession of which, more than of any other, helps to secure the victory, by enabling its holder to make a proper application of the principles of war: arrangements should therefore be made for striking the decisive blow upon this point. The decisive point of a battle-field is determined, as has been already stated, by the character of the position, the bearing of different localities upon the strategic object in view, and, finally, by the arrangement of the contending forces. For example: suppose an enemy's flank to rest upon high ground, from which his whole line might be attained, the occupation of this height seems most important, tactically considered; but it may happen that the height in question is very difficult of access, and situated exactly so as to be of the least importance, strategically considered. At the battle of Bautzen the left of the Allies rested upon the steep mountains of Bohemia, which province was at that time rather neutral than hostile; it seemed that, tactically considered, the slope of these mountains was the decisive point to be held, when it was just the reverse, because the Allies had but one line of retreat upon Reichenbach and Gorlitz; and the French, by forcing the right, which was in the plain, would occupy his line of retreat and throw the Allies into the mountains, where they might have lost all their *matériel*, and a great part of the *personnel* of their army. This course was also easier for them, on account of the difference in the features of the ground, led to more important results, and would have diminished the obstacles in the future. The following truths may, I think, be deduced from what has been stated:—

(1) The topographical key of a battle-field is not always the tactical key.

(2) The decisive point of a battle-field is certainly that which combines strategic with topographical advantages.

(3) When the difficulties of the ground are not too formidable upon the strategic point of the battle-field, this is generally the most important point.

(4) It is nevertheless true that the determination of this point depends very much upon the arrangement of the contending forces. Thus in lines of battle too much extended and divided, the centre will always be the proper point of attack; in lines well closed and connected

the centre is the strongest point, since, independently of the reserves posted there, it is easy to support it from the flanks; the decisive point in this case is therefore one of the extremities of the line. When the numerical superiority is considerable, an attack may be made simultaneously upon both extremities, but not when the attacking force is equal or inferior numerically to the enemy's. It appears, therefore, that all the combinations of a battle consist in so employing the force in hand as to obtain the most effective action upon that one of the three points mentioned, which offers the greatest number of chances of success; a point very easily determined by applying the analysis just mentioned.[1]

6. The object of an offensive battle can only be to dislodge the enemy or to cut his line, unless it is intended by strategic manœuvres to ruin his army completely. An enemy is dislodged either by overthrowing him at some point of his line, or by outflanking him, so as to take him in flank and rear, or by using both these methods at once; that is, attacking him in front, while at the same time one wing is enveloped and his line turned. To accomplish these different objects, it becomes necessary to make choice of the most suitable order of battle for the method to be used.

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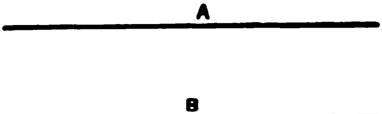
Each of the orders* may be used either by itself or in connection with the manœuvre of a strong column, intended to turn the enemy's line. In order to a proper appreciation of the merits of each, it becomes necessary to test each by the application of the general principles which have been laid down. For example: it is manifest that the parallel order is worst of all, for it requires no skill to fight one line against another, battalion against battalion, with equal chances of success on either side: no tactical skill is needed in such a battle.



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The parallel order, with a crochet upon the flank, is mostly usually adopted in a defensive position. It may be also the result of an offensive combination; but then the crotchet is to the front, whilst in the case of defence it is to the rear. The battle of Prague, is a very remarkable example of the danger to which such a crotchet is exposed if properly attacked. The parallel order reinforced upon one wing or upon the centre, to pierce that of the enemy, is much more favourable than the preceding one, and is also much more in accordance with the general principles which have been laid down; although when the contending forces are about equal, the part of the line which has been weakened to reinforce the other, may have its own safety compromised, if placed in line parallel to the enemy. The oblique order is the best for an inferior force attacking a superior; for in addition to the advantage of bringing the main strength of the forces against a single point of the enemy's line, it has two others equally important; since the weakened wing is not only kept back from the attack of the enemy, but performs also the double duty of holding in position the part of his line not attacked, and of being at hand as a reserve for the support, if necessary, of the engaged wing. This order was used by the celebrated Epaminondas, at the battles of Leuctra and Mantinea. The most brilliant example of its use in modern times, was given by Frederick the Great at the battle of Leuthen.[1]

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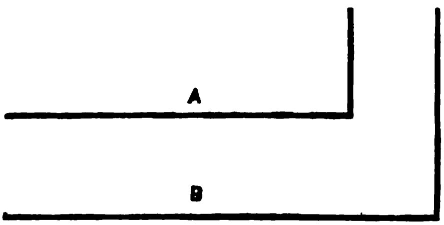
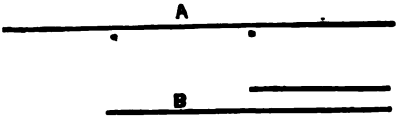
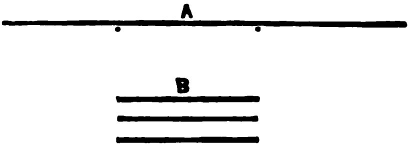
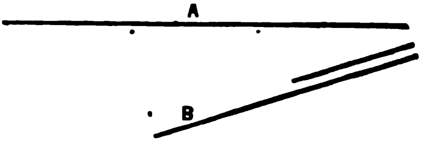
* Twelve orders are enumerated by Jomini. F.J.S.

[1] Jomini, Chap. IV., Art. 31.









7. An army may attack its enemy in front or flank. If it aims at a flank, say the right, its own right must be refused. Hence, whence it arrives on the extremity of the enemy's line, the army will be in

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[1] Jomini, Chap. IV., Art. 31.

oblique order. And as the head of the column will meet the first shock, and as the success of the whole movement depends on its progress, it should be strongly reinforced. This is more especially necessary when the assailed flank of the enemy rests on some impassable obstacle, and must therefore be broken through rather than turned. And it is also essential that the refused wing should continue refused for a certain time after the commencement of the attack; the disastrous consequences of neglecting this are exemplified in the battle of Kolin.[1]

8. Although the rearmost wing must be refused in making an oblique attack, it by no means follows that it should not take part in the engagement; on the contrary, every portion of the army unemployed, and which does not neutralize part of the enemy, is a chance lost. It will enter into the action either when the progressive advance of the line brings it in contact with the enemy, or by wheeling up and attacking the troops, with which the enemy may seek to reinforce and extend his new line. The one thing essential is, that it should remain refused till the progress of the rest of the army secures it from the counter-attack of superior forces. Frederick, whose system did not include large disposable reserves, used to reinforce the head of his attack with his advanced guard, and part of the cavalry of the refused wing. His advance in two lines renders these actions perfect examples, in form as well as in fact, of the oblique order.

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But modern armies need by no means adhere to the oblique form, though adopting in spirit the oblique order. The head of the attack would be reinforced either from the reserve or the second line of the refused wing; the troops intended successively to support the attack, would be formed in the manner most convenient for moving them to their destined places; the whole front would be masked with skirmishers and the fire of artillery; and a preponderating force of guns would be brought to bear on the assailed wing. Battalion columns in echelon—the head of the echelon reinforced and followed by strong reserves—the *outward* flank protected by powerful cavalry, with its accompanying horse artillery, and the field batteries assembled on the *inner* flank, so as to support the attack and to enfilade the probable new front of the enemy—would generally be a suitable formation for the part of the army beginning an attack upon the enemy's flank. The error of the Allies at Austerlitz, and the Prussians at Kolin, sufficiently demonstrates the necessity for preserving the *continuity* of the line throughout the process of an oblique attack. Not to preserve it, is to multiply the flanks (or weak points), of the line.[1]

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[1] Hamley, Part VI., Chap. IV.

9. Time being proportionate to distance, the refusal of one wing of an army, or its removal from the enemy, will have an analogous effect to that of a natural obstacle in protecting the retired wing, which may, therefore, be weakened in a similar ratio to reinforce that wing which is nearest the enemy. The object to observe is, that, by reason of the distance, the enemy shall not be able to attack or turn the retired flank in as short a time as would be required by you either to reinforce that flank, or to gain a decided advantage with the other.[2]

10. Jomini remarks, in reply to several statements made in the Memoirs of Napoleon, published by General Montholon, "The great Captain seems to consider the oblique order a modern invention, a theorist's fancy,—an opinion I can by no means share; for the oblique order is as old as Thebes and Sparta, and I have seen it used with my own eyes. This assertion of Napoleon seems the more remarkable, because Napoleon himself boasted of having used, at Marengó, the very order of which he thus denies the existence.

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"The oblique order has no other object, than to unite at least half the force of the army in an overwhelming attack upon one wing, while the remainder is retired to the rear, out of danger of attack, being arranged either in echelon or in a single oblique line."[3]

11. Theoretically speaking, "oblique orders of battle," are always successful, because they present a whole line to an extremity, and therefore bring into action a greater force than the enemy, in conformity with the fundamental law in all military combinations, of "effecting with the greatest mass of forces a combined attack upon the decisive point." Even where the victory is ultimately lost, the manœuvre shews at what risk and price it must be met, as in the case of

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[1] Hamley, Part VI., Chap. IV.

[2] MacDougall.

[3] Chap. IV., Art. 31.

Albuera, where Soult's front came upon the right flank of the Spaniards with such rapid progress, that the British in the centre, in order to form a new front, were obliged to extend the line at an angle to the rear, which was not effected but with great risk and loss.[1]

12. The perpendicular order on one or both wings, can only be considered an arrangement to indicate the direction along which the primary tactical movements might be made in battle. Two armies will never long occupy the relative perpendicular positions indicated; for if the army *B* were to take its first position on a line perpendicular to one or both extremities of the army *A*, the latter would at once change the front of a portion of its line; and even the army *B*, as soon as it extended itself to or beyond the extremity of *A*, must of necessity turn its columns either to the right or left, in order to bring them near the enemy's line, and so take him in reverse, as at *C*, the result being two oblique lines as shown in Fig. I. The inference is that one division of the assailing army would take a position perpendicular to the enemy's wing, whilst the remainder of the army would approach in front for the purpose of annoying him; and this would always bring us back to one of the oblique orders.[2]

Fig. 1.

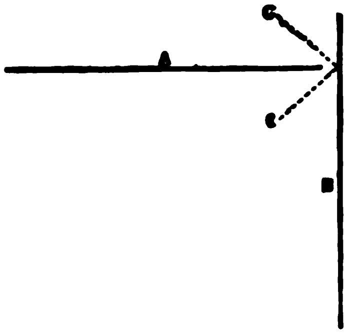
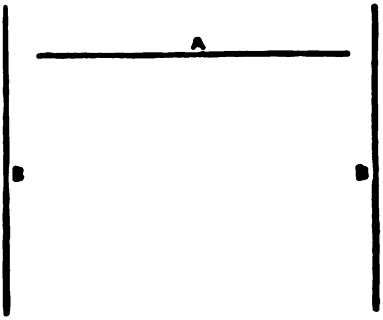


Fig. 2.



13. The order by echelon on the centre may be used with special success against an army occupying a position too much cut up and too extended, because its centre being then somewhat isolated from the wings and liable to overthrow, the army thus cut in two would be

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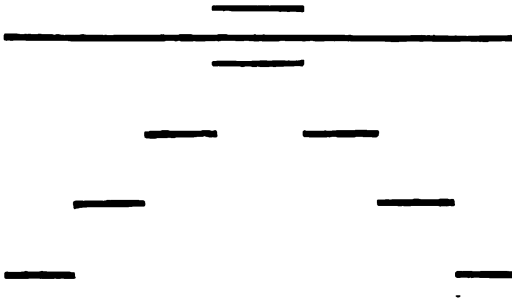
[1] (Aide-Memoire). C.H.S.

[2] Jomini, Chap. IV., Art. 31.

probably destroyed. But applying the same fundamental principle, this order of attack would appear to be less certain of success against an army having a connected and closed line; for the reserve being generally near the centre, and the wings being able to act either by concentrating their fire or by moving against the foremost echelons, might readil repulse them.



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This order by echelons was adopted by Laudon for the attack of th intrenched camp at Buntzelwitz. In such a case it is quite suitable for it is then certain that the defensive army being forced to remai within its intrenchments, there is no danger of its attacking th echelons in flank. But, this formation having the inconvenience o indicating to the enemy the point of his line which it is desired t attack, false attacks should be made upon the wings, to mislead him a to the true point of attack.[1]

14. The attack in order of battle, echeloned on the centre,—whic is manifestly a variety of the salient order—will generally fail i deliberately attempted on a large scale, for, its object being obvious it will be provided for by reinforcing the threatened centre, an throwing forward the wings.[2]

15. Masses of cavalry may operate with great effect from the ape of a salient order, for the objections against making them the centra portions of a straight line of battle do not apply here, as immediatel on issuing from the opening of the faces they find a wide field free fo their advance, and form, in reality the flanks of those faces, while th rapidity of their movement peculiarly fits them for filling an interva of the kind.[3]

16. 'Previous to the battle of Königgrätz,' the direction of the doubl advance of the Prussian armies, caused the Austrian line to be sharpl

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[1] Jomini, Chap. IV., Art. 31.

[2] Hamley, Part VI., Chap. IV.

[3] *Ibid.*

angular. Among other defects known for these hundred years, such a formation is weak at the angle, where both faces can be enfiladed; and at the battle of Prague proof was given that the advance of either wing must necessarily leave a gap in the line, unless instantly filled from the reserve. Before daybreak on the morning of the battle the Prussians began their march, it having been concerted that, if the Austrians should offer battle here, Herwarth and the First Army should commence the attack on the line of the Bistritz, and the Crown Prince should march along the bank of the Elbe to join in the action. The Prussians, then, were fighting on two fronts, and enclosing the front of the Austrians, a manœuvre that would have been very dangerous to attempt had they all entered Bohemia by the same line.[1]

17. 'At the battle of Prague, 1757,'—the Austrians, noting the direction of Schwerin's approach from the Elbe, and taking advantage of the cover of the fish-ponds, had already accomplished the operation of throwing back a flank, so as to face the enemy on that side. They met the attack, therefore under circumstances unusually favourable. Yet the disadvantages of the formation on a salient angle, as exemplified in this battle, are still of the most formidable character; for instance.

(1) The whole force of the assailant, may be brought to bear on one face of the angle.

(2) The advance of either face, causes a gap at the angle.

(3) The face assailed will then be liable, to be turned on both flanks.

(4) The fire of the assailant's artillery, enfilades one or both faces.

(5) The defeat of the assailed wing compromises the retreat of the other, supposing the original front of the army to have covered its proper rear. Add to this that the troops at the angle, exposed to a cross-fire, must crowd on each other in falling back, and so create a weak point in that decisive point of the line; and we see, that the turning of a flank by a considerable part of the assailant's line advancing in order of battle is, in general, the prelude to a very decisive victory, and is to be guarded against by every possible precaution.[2]

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[1] Blackwood's Mag.

[2] Hamley, Part VI., Chap. I.

18. As examples of a convex order of battle let us take Ligny, in which battle, the Prussians, guarding as they did the line of the river from Wagnelé to Balatre Ste. Alde, had their centre at Ligny itself eventually pierced by the sudden and vigorous onslaught of Napoleon's reserve. As examples of the salient order, we have Montenotte and Sadowa, in both of which—seventy years apart in time—the Austrians having adopted that order, experienced all its disadvantages, and found that the defeat of one wing greatly compromised the other. On the other hand, we see how Meade, at Gettysburg, having adopted the salient order derived success from it, because the angle of his line was so much secured by the strong hill on which it was posted.[1]

19. After discussing the disadvantages of forming the front of an army on a salient or outward angle, Colonel Hamley, adds:—"Nevertheless, there are cases where such an order may be resorted to without entailing the usual penalties. For instance, the wings may be strongly protected by obstacles, and the apex of the angle may be so placed as to deprive the cross-fire of the enemy's artillery of its full effect. * * * The left wing 'of the Federal front at Gettysburg' on the heights overlooked the plain along which the Confederates advanced; the right wing, also on high ground, was partly fortified, and covered by a stream. The apex of the line rested on the hill, which formed the highest and strongest part of the position, and which acted as a traverse or great mound protecting the wings from enfilade. If thus strengthened, this order of battle possesses the manifest advantage of enabling the reserve to reinforce any part of the line with the utmost facility—a circumstance which greatly aided the Federals at Gettysburg, where the corps of reserve was moved from wing to wing to meet the Confederate attacks."[2]

20. The convex order with the centre salient, answers for an engagement immediately upon the passage of a river, when the wings must be retired and rested on the river to cover the bridges; also, when a defensive battle is to be fought with a river in the rear, which is to be passed and the defile covered as at Leipsic, and finally it may become a natural formation to resist an enemy forming a concave line. If an enemy directs his efforts against the centre, or against a single wing, this order might cause the ruin of the whole army.[3]

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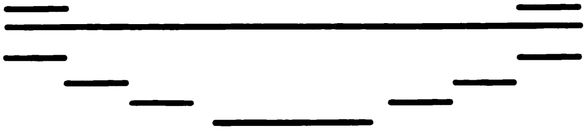
[1] Walker.

[2] Hamley, Part VI., Chap IV.

[3] Jomini, Chap. IV., Art. 31.

21. The concave order is merely a variety of the enclosing angle, or rather it generally resolves itself into the order echeloned on both wings. To await in such order an equal enemy formed on a straight front would be to offer both flanks to his attacks. In assuming it, it would be indispensable, therefore, that the flanks were rendered perfectly secure by the nature of the ground. In such a case the position would be extremely difficult to assail, whether on the protected flanks or the retired centre. As an adversary would scarcely enter such a trap with his eyes open, the flanks might be connected directly by a thin line of troops forming an apparent or false front, and veiling the real centre while inviting the attack. To attempt *to turn an enemy on both flanks*, refusing the centre, would produce an order of this kind; if attempted *with equal numbers*, it must break the continuity of the line, and could only be justified if the intervals or weak portions were rendered, by obstacles or fortifications, strong against counter-attack.[1]



22. Of the concave order with all its disadvantages, we see a good example at Austerlitz, where the Russians adopted that order, with the view of surrounding the French, and found that to attempt the offensive from it was impracticable and exposed their own centre to be penetrated, and their left to be cut off and driven to that fearful catastrophe which it experienced in Lake Satchau.[2]

23. The vices of the Confederate dispositions for the battle of Gettysburg, have been freely acknowledged by themselves since its loss, and need not be dilated on at any great length. Longstreet himself epitomized them at the time, when he said, that "the army should have been more concentrated, and the attack (of the 3rd) have been made with 30,000 instead of 15,000 men." And when we look more particularly into details, and observe that the Federal left centre was entered indeed on the 2nd, but by two brigades merely without support; and on the 3rd, but only by a single division, the weakest in the army, which remained isolated after its gallant effort; we see plainly the evil effect of the dissemination of the assailants along a line so long that

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[1] Hamley, Part VI., Chap IV.

[2] Walker.

they were in no decisive force at the critical point. This error may be traced throughout the battle of the 2nd and 3rd as giving the key to their failure in other parts, as well as when the main attack was made. Thus we find two of Ewell's divisions making useless efforts along the whole front of the cemetery, whilst the third (Johnson's) possesses itself for a time of the position on the enemy's right flank, but acts in so unsupported a manner as to be driven out as soon as the Federals turn their attention to it.[1] * * * *

24. It can scarcely, almost never, be justifiable to attack an enemy simultaneously on both flanks, unless the assailants have a very large preponderance of force; for both the flank attacks must be reinforced at the expense of the centre, which thereby becomes unduly weakened, and which cannot be kept at such a distance from counter-attack as a refused wing in the case where only one of the enemy's flanks is assailed. This does not however preclude a demonstration against one flank to distract the enemy's attention from the other, supposing it to be the real object.[2]

25. The attack on both wings, whatever be the form of attack adopted, may be very advantageous, but it is only admissible when the assailant is very decidedly superior in numbers; for if the fundamental principle is to bring the main strength of the forces upon the decisive point, a weaker army would violate it in directing a divided attack against a superior force.[3]

26. In the battle of Vimero, 21st August, 1808, the Duke of Abrantes showed great courage, but no talent. His army was in inferior in numbers, yet he formed two separate attacks, an evident error that enabled Sir Arthur to beat him in detail without difficulty. And it was the less excusable, because the comparatively easy nature of the ground over which the road from Torres Vedras to Lourinham led, and the manner in which the English army was heaped to the right when the position first opened to the view of the French general, plainly indicated the true line of attack. Junot should, with all his forces concentrated for one effort, have fallen in upon the left of his opponent's position; if victorious, the sea would have swallowed those who escaped

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[1] Campaigns, in Virginia, &c.

[2] MacDougall.

[3] Jomini, Chap. IV., Art. 31.

his sword. If repulsed, his retreat was open, and his loss could not have been so great, in a well-conducted single effort, as it was in the ill-digested, unconnected attacks that took place.[1]

27. It may be laid down as a principle that any movement is dangerous which is so extended as to give the enemy an opportunity, while it is taking place, of beating the remainder of the army in position. Nevertheless, as the danger depends very much upon the rapid and certain *coup d'œil* of the opposing general, as well as upon the style of warfare to which he is accustomed, it is not difficult to understand why so many manœuvres of this kind have failed against some commanders and succeeded against others, and why such a movement, which would have been hazardous in the presence of Frederick, Napoleon, or Wellington, might have entire success against a general of limited capacity, who had not the tact to take the offensive himself at the proper moment, or who might himself have been in the habit of moving in this manner. It seems, therefore, difficult to lay down a fixed rule on the subject. The following directions are all that can be given. Keep the mass of the force well in hand and ready to act at the proper moment, being careful, however, to avoid the danger of accumulating troops in too large bodies. A commander observing these precautions will be always prepared for anything that may happen. If the opposing general shows little skill and seems inclined to indulge in extended movements, his adversary may be more daring

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In the Seven Years' War, Frederick gained the battle of Prague because the Austrians had left a feebly-defended interval of one thousand yards between their right and the remainder of their army,—the latter part remaining motionless while the right was overwhelmed.

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On the other hand, Frederick came near losing the battle of Torgau, because he made with his left a movement entirely too extended and disconnected (nearly six miles) with a view of turning the right of Marshal Dann. Mollendorf brought up the right by a concentric movement to the heights of Siptitz, where he rejoined the king whose line was thus re-formed. The battle of Rivoli is a noted instance in point. All who are familar with that battle know that Alvinzi and his chief of staff Weyrother wished to surround Napoleon's little army, which was concentrated on the plateau of Rivoli. Their centre was beaten, while their left was piled up in the ravine of the Adige, and Lusignan with their right, was making a wide *détour* to get upon the rear of the French army, where he was speedily surrounded and captured.

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[1] Napier, Vol. I.

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We may call to mind how this same General Weyrother, who had desired to surround Napoleon at Rivoli, attempted the same manœuvre at Austerlitz, in spite of the severe lesson he had formerly received. The left wing of the allied army, wishing to outflank Napoleon's right, to cut him off from Vienna (where he did not desire to return,) by a circular movement of nearly six miles, opened an interval of a mile-and-a-half in their line. Napoleon took advantage of this mistake, fell upon the centre, and surrounded their left, which was completely shut up between Lakes Tellnitz and Melnitz. Wellington gained the battle of Salamanca by a manœuvre very similar to Napoleon's, because Marmont who wished to cut off his retreat to Portugal, left an opening of a mile-and-a-half in his line,—seeing which the English general defeated his left wing, that had no support

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In case of superiority in numbers or discipline, manœuvres may be attempted which would be imprudent were forces equal or the commanders of the same capacity. A manœuvre to outflank and turn a wing should be connected with other attacks, and opportunely supported by an attempt of the remainder of the army on the enemy's front, either against the wing turned or against the centre. Finally, strategic operations to cut an enemy's line of communications before giving battle and attack him in rear, the assailing army preserving its own line of retreat, are much more likely to be successful and effectual, and, moreover, they require no disconnected manœuvre during the battle.[1]

28. 'At the battle of Austerlitz,'—the infantry of the Allies had not yet abandoned the long flank movements of Frederick. General Weyrother's plan was in reality an oblique attack on the French right.

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[1] Jomini, Chap. IV., Art. 32.

It would have been impossible even for Frederick the Great to ensure its perfect execution, as the ground over which they had to move was very much cut up. If, on the contrary, he had been in Napoleon's place, he would, as at Rosbach, have opposed the head of the enemy's columns, and have fallen on their flanks before they had time to deploy. The manœuvres in the face of the enemy were made in deployed lines. The allies neglected or were ignorant of the use of the column of attack, which the French employ so successfully. They did not use skirmishers, except in the attack on Sokolnitz and Tellnitz, and in the flank march of the grand Duke Constantine.[1]

The Battle of Salamanca, 1812.

29. It was about midnight when intelligence reached Lord Wellington that the arrival of a reinforcement of cavalry and artillery from Cafferelli's corps might be expected by Marmont on the morrow. He gave such orders immediately as would enable his army to begin its march at a moment's notice towards Ciudad Rodrigo. But he suspended the movement itself after daylight, in the hope that the enemy might commit some blunder. He did not hope in vain. Rendered over-confident by the success which had heretofore attended him, Marmont conceived that the moment had arrived for accomplishing the great purpose for which so many skilful changes of position had been effected. He directed his advanced guard, under Bonnet, to move at daybreak on the 22nd, in the direction of Ciudad Rodrigo. One of the Arapiles crossed, in some measure, the line of march of this French division, and a body of Portuguese troops were seen pushing, as if to take possession of it. Bonnet promptly wheeled up, drove away the Portuguese, and seized the height. It was a great advantage gained; the hill looked down upon the only road by which the English army, in case of a reverse, could defile, and a battery of guns planted upon its summit, rendered such an operation impossible. Meanwhile, the two armies had changed their order of battle. The right of the French, consisting of Foy's and Ferey's divisions, supported by Boyer's dragoons, leaned upon the

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[1] Ambert.

plateau of Calvarasa, and was covered by a wide ravine. In the centre, were the divisions of Clausel, Sarrut, Macune, and Brennier, massed behind the Arapile on which Bonnet stood. The left was composed of Thomière's infantry, and Corto's cavalry division; it occupied another plateau, on which were placed twenty pieces of cannon. But about half a league from that plateau was the height of Miranda, and still further on the village of Santa Thome de Rosados. These effectually blocked the way to Ciudad Rodrigo, the latter indeed being in the direct road to Tamames. Marmont determined to seize them; and desiring Macune and Brennier to close up, with fifty pieces of cannon, he detached Thomière, about two in the afternoon, on that perilous service. Correspondent with the French march to the left, a change of front to the right had taken place in the English army. The first and light divisions were on the left, between the two Arapiles; Cole's and Leith's in two lines, stood to the right of the French Arapile. Hope's and Clinton's division came next, with a Spanish corps under Don Carlos D'Espana; and on the extreme right of all was Pakenham's division, supported by a strong body of cavalry. Lord Wellington himself stood upon the brow of a hill, whence he could take in the entire field of operations, which was likewise exposed to the view of Marmont, who had posted himself on the Arapile. Marmont had committed a terrible mistake, which the eagle glance of his adversary at once detected. The French army was spread over too wide a space, and a gap intervened between its left and centre. The English, on the contrary, were well in hand, and well their leader knew how to deal with them. Pakenham was directed to throw himself with his division, two batteries and D'Urban's cavalry, upon the French left; Cole and Leith, supported by Clinton and Hope, were launched against their centre; while Pack's Portuguese were ordered to retake the Arapile, in the occupation of which Bonnet's division had in the early part of the day anticipated them.[1]

30. Previous to the battle of Salamanca, the French troops coming from Babila Fuente, had not yet reached the edge of the forest, when Marmont, seeing that the Allies would not attack, and fearing that they would retreat before his own dispositions were completed, ordered

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[1] Gleig.

Thomière's division, covered by fifty guns and supported by the light cavalry, to menace the Ciudad Rodrigo road. He also hastened the march of his other divisions, designing, when Wellington should move in opposition to Thomière, to fall upon him, by the village of Arapiles, with six divisions of infantry and Boyer's dragoons, which last, he now put in march to take fresh ground on the left of the Arapiles rocks, leaving only one regiment of cavalry to guard Foy's right flank at Calvariza.[1]

31. It was about five o'clock when Pakenham fell upon Thomière, and it was at the instant when that general, the head of whose column had gained an open isolated hill at the extremity of the southern range of heights, expected to see the Allies in full retreat towards the Ciudad Rodrigo road, closely followed by Marmont from the Arapiles. The counter-stroke was terrible! Two batteries of artillery, placed on the summit of the western heights suddenly took his troops in flank, and Pakenham's massive columns, supported by cavalry, were coming on full in his front, while two-thirds of his own division, lengthened out and unconnected, were still behind in a wood, where they could hear but could not see the storm which was now bursting. From the chief to the lowest soldier all felt that they were lost, and in an instant Pakenham the most frank and gallant of men, commenced the battle.[2]

32. The battle which ensued, though fierce and bloody, lasted scarcely an hour. It was never for a moment doubtful. Marmont saw, when too late, the error of which he had been guilty, and did his best to retrieve it. But he had to deal with a general who never permitted an advantage once obtained to be wrested from him. It is but fair to add, that the fortune of war greatly favoured the assailants. Marmont, struck in the arm by a round shot while in the act of hurrying up Macune's and Thomière's divisions, was carried from the field. Thomière, on whom the command devolved, received at the same instant a wound, which disabled him, and Bonnet, the next in seniority, was almost immediately afterwards struck down. Before Clausel could come up from the extreme right, all was confusion on the left and in the centre, and there remained for him only the task, by no means an easy one, of saving as he best could the wreck of the army.

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[1] Napier, Vol. V. [2] *Ibid.*

The battle of Salamanca, was by far the most decisive which had as yet been fought in the Peninsula. It established Lord Wellington's character as a tactician beyond the reach of cavil. Never were troops better handled than in all the manœuvring which preceded it: never was *coup d'œil* more correct, nor execution more rapid, than in the detection of Marmont's blot, and in the manner of striking it.[1]

33. * * On the heights of Inkerman, the Russians brought up the main body of their forces; and on the 5th November they attacked with their collected army, combined with a large part of the garrison, with which they formed a junction on the line of communication which had always been open to them. It was manifestly their intention to have established themselves on the ridge of heights which they attacked, because they had absolutely a number of carts with intrenching tools and materials, close up with the troops, some of which were taken. Had they succeeded to that extent, they would have turned our whole position and occupied one flank of it on commanding ground, and the result must have required very heavy sacrifices, perhaps that of all our battering train, to have dislodged them, which would have been absolutely necessary to save the combined army from utter destruction.[2] * * * * * *

34. * * Since the army that attempts to turn the flank of another, to which it stood originally parallel, by passing round it, out of range of its artillery, is moving on an arc of which the antagonist commands the chord, it follows that, in ordinary circumstances, and with the same conditions of ground, such an enterprise will be not only futile but disastrous. In general, the way to meet it will be to change front with the threatened wing; and, disengaging the remainder of the line, move it behind that wing into the prolongation of the new alignment. That an open turning manœuvre may succeed against inferior troops, and generals, has, however, been often proved; and the commander of a disciplined force opposed to barbarous troops—a British leader, for instance, acting against a native army in India—would be justified by the superior manœuvring power of his force

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[1] Gleig.

[2] Sir J. F. Burgoyne.

(enabling it to defend itself at any stage of the operation, to outmarch its enemy, or to return on its path without disorder) in attempting openly to turn the flank of his enemy.[1]

35. It would evidently be a great advantage to the defenders of a position, if the enemy, in advancing to attack it, found his line separated into two parts by some obstacle which would forbid communication between the different parts of the defensive position. If we suppose a stream or ravine to intersect his position at right angles, it should be spanned with as many bridges as would enable troops and guns to pass from one side to the other, as freely as if no such feature existed. As an example, let it be supposed that you occupy a position, which is cut transversely by a stream, over which there are no bridges and which is unfordable. By throwing bridges, the passage of your troops and guns from one side to the other may be made as easy if no such obstacle existed. The enemy, on the other hand, in advancing to attack will be cut in two; and here you will have an opportunity of assuming the offensive with great advantage. By means of the bridges, you may concentrate a superior force to overwhelm the weaker of his separated portions on one side of the stream, while you hold the other in check on the other side of the stream until your success against the first portion shall enable you to return to overwhelm the remainder. If the enemy, instead of dividing his army, should, by means of bridges constructed at some distance from your position, operate with his whole force on one side of the stream, you have the option of either opposing him on that side with your united army, or of drawing it entirely to the other side, thereby offering a new front covered by the river. Such a proceeding on your part, however, would be only admissible in the case where your line of retreat lies on that side of the river which you occupy. But a like consideration must rule the movements of the enemy; it is evident that he could not safely transfer his force to one side of the stream, if his line of retreat, lying on the other side, was thereby laid open to you.[2]

36. Of the same nature in principle as the foregoing example, would be a lake or marsh covering part of your front. The lake in this case forms a certain portion of your line of defence. You may leave

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[1] Hamley, Part VI., Chap. I. [2] MacDougall.

that part to guard itself, so as to be stronger for the defence of those parts which are open to attack. But the enemy in advancing will be separated by the lake; to reinforce one of the separated portions from the other, he must make a long détour, at the expense of time, which may be employed by you to beat the troops in your front before his reinforcements can arrive to their aid. The march of your own troops being unimpeded in rear of the lake, you can always be stronger than the enemy on the side on which you may choose to take the offensive. You operate, in fact, on interior lines; the enemy, on exterior.[1]

37. If the river or rivulet, in the front of your camp, has not a sufficient depth of water, it must be damed, so as to render it impassable.[2]

38. M'Clellan, with his army, was advancing slowly up both banks of the Chickahominy, a little stream—little in point of size, but very difficult to cross, having muddy banks. As one wing of the army was on the northern bank and the other on the southern, they were for a time in a position that was dangerous to them, for the bridges that were ordered to be constructed to keep up the communication between the two wings, were not made for many days, and, during the time they were being made, the first battle between the two armies took place. The confederate General Johnston, seeing that the wing on the one bank could not communicate with the wing on the other, and that it was without any support, attacked that wing with nearly the whole of his troops. This was called the battle of Fair Oaks. The Southerners were partly successful; they drove the troops down the peninsula, and partly succeeded in their object, which was to divide the two wings of M'Clellan's army.[3]

39. Perpendicular changes of front are rarely used; changes completely to the right or left being seldom necessary.

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In changes of front, artillery must take up a position from which it can, if necessary, sweep the front and its prolongation towards the flank in motion. It will generally find such a position near the pivot, where one would also have the advantage of not being disturbed during the execution of the movement.[4]

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[1] MacDougall. [2] Frederick. [3] (U. S. Institution), C.C.C. [4] Ambert.

40. When a division or a wing, in an action, has to change front by throwing a shoulder forward, it is of importance to establish a battery in front of the pivot, so as to protect the movement of the troops and the execution of the manœuvre; and for this purpose, it will be found advantageous to make use of a heavy battery of the artillery of reserve; the light field or horse artillery pieces should follow the wheeling flank as a reserve, to enable them to oppose a flank attack of the enemy at once, or to take up a position on the outer flank, when the change of front is completed.[1]

The Battle of the Alma.

41. The battle of the Alma was certainly fought without much skill, since not more than 15,000 British and 10,000 French were engaged, and no Turks; that is to say, more than 30,000 men were made no use of.

(1) The Turks and 2000 French to have been placed on the right, to keep the left of the Russians in check, while the fleet threw shells, &c.

(2) The right of the French army to have been opposite the village in the centre, their left extending to where Brown attacked.

(3) The British should then have marched diagonally by columns, right in front, to turn the pinnacle marking the Russian right; I say right in front, because of the Russian cavalry, for thus the columns could wheel up on their right, continually outflanking the pinnacle and closing it. Harding, • says that it was so designed, but that fear of the Russian cavalry prevented the movement, and made them take the bull by the horns. This only shows a want of tactical skill. The ground on the British side of the Alma was lower and more practicable for cavalry than the other side; consequently, as the 4th division and our cavalry kept the Russians in check there, they would have done so beyond the river, and a strong advanced guard of all arms would have protected the main movement. Now, when the pinnacle

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[1] Taubert.

was enveloped, and the firing there begun (not sooner), the French in the centre should have advanced, and as soon as they were wel engaged, the Turks on the right should have advanced in their turn In this manner the strength of the position would have been turned and the whole Russian army driven into the sea.[1]

SECTION II.

DEFENSIBLE POSTS OF A POSITION.

1. When villages, hamlets, farms, or enclosures of any kind ar occupied by soldiers, and placed in a state of defence, they are calle *military posts.* The advantage which may be derived from an intrenched village on a field of battle, is too apparent to need comment a post of this kind, when properly defended, will oblige an enem either to make great sacrifices to get possession of it, or altogethe to forego the offensive operations he may have contemplated.[2]

2. It is generally quite important to defend villages on the front o a position, or to endeavour to take them when held by an enemy who i assailed; but their importance should not be over-estimated; for w must never forget the noted battle of Blenheim, where Marlboroug and Eugène, seeing the mass of the French infantry shut up in th villages, broke through the centre and captured twenty-four battalions which were sacrificed in defending these posts. For like reasons i is useful to occupy clumps of trees or brushwood, which may affor cover to the party holding them. They shelter the troops, concea their movements, cover those of cavalry, and prevent the enemy from manœuvring in their neighbourhood. The case of the park of Hougoumont, at the battle of Waterloo, is a fine example of the influence th possession of such a position, well chosen and strongly defended, ma have in deciding the fate of a battle. At Hochkirch and Kolin, th possession of the woods was very important.[3]

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[1] Sir William Napier.

[2] Macaulay.

[3] Jomini, Chap. VII, Art. 44.

3. No one can doubt, who knows the field of battle 'at Waterloo,' and who is even tolerably informed of the circumstances, that Napoleon's plan of attack was that of breaking Wellington's centre at La Haye Sainte, overthrowing the left of the Allied line, and thus going far to ensure the defeat of the Anglo-allied army; to separate it entirely from that of Blucher, and to gain the command of the great road to Brussels. Two hours had been lost to Napoleon in the attack of Hougoumont, which attack was only an auxiliary operation to the main one by which he hoped to gain the battle. During these two hours, Ney was preparing for making the intended great attack on the centre and left of the Anglo-allied line. For this purpose he placed in position, on the central rise of ground that was between the main ridges on which the armies stood, a battery of 74 pieces of artillery, so that its fire might bear directly upon the right of Picton's, and on the left of Alten's divisions, and upon La Haye Sainte. The right of Picton's division was on the left of the Charleroi road, the left of Alten's was on that road, and La Haye Sainte was upon it; this was the very centre of the Allied army, so that breaking in upon and gaining this part of the position was the all-important object which Napoleon had in view. The battery of 74 guns, of which part were 12 pounders, was at the distance of only 250 yards from La Haye Saint, and about 600 yards from the Anglo-allied position; it both covered the French troops in their advance to attack, and caused great loss in the Anglo-allied line.[1] • • • •

4. The possession of La Haye Sainte by the French was a very dangerous incident. It uncovered the very centre of the Anglo-allied army, and established the enemy within 60 yards of that centre. The French lost no time in taking advantage of this, by pushing forward infantry supported by guns, which enabled them to maintain a most destructive fire upon Alten's left and Kempt's right, and to drive off Kempt's light troops, that occupied the knoll in his front. By this fire they wasted most seriously the ranks of the left of Alten's and the right of Kempt's divisions; so much so that Ompteda's brigade having been previously nearly destroyed, and Kielmansegge's much weakened, they were now not sufficiently strong to occupy the front which was originally assigned to them.[2]

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[1] Kennedy. [2] *Ibid.*

5. The echelon formation is especially suited to the attack of posts of this kind*—Suppose, for instance, a farm * with its yard, wall, outbuildings, and orchard, is to be attacked by a brigade of six battalions from the first line; that the left flank of the brigade is considered secure (being protected by cavalry, let us suppose); that the other flank, however, is exposed. The brigade advances by echelon of battalions from the left, except two battalions, one of which supports the head of the echelon at 50 yards' interval, and the other, formed in double column of companies, follows as a reserve at the height of the third echelon. The guns of the division, reinforced from the reserve artillery, concentrate their fire on the post till their front is masked by the advance of the infantry, when they are turned on such batteries of the enemy as bear on the battalions of attack. The leading battalions throw out their flank companies as skirmishers, and then attack; the reserve supports them, and, if necessary, the second echelon. Should a counter-attack be made on the right flank, the echelons meet it, either on their existing front, or by an oblique formation; should the attack fail, they recover the retreat; should it succeed, they either extend on the flank of the captured post, or form in rear, according to circumstances, to confirm the success; and, throughout, they maintain the connection between the head of the attack and the line of battle. Points of this kind, villages, woods &c., in the *actual line of battle*, are far from advantageous; they break the unity of the defence, hinder the circulation of troops, and, should the enemy gain a footing in them, give him strong support in his efforts to permanently sunder the line; while, if the line be broken elsewhere, the troops occupying such points are frequently cut off, like the garrison of Blenhiem. Should they be set on fire by shells, they would cause disastrous confusion. The line of battle can, therefore, be scarcely too clear of such obstacles from flank to flank.[1]

6. Frederick and Napoleon did not agree with the ideas of Marshal Saxe; they avoided, as much as possible, the attack of villages, because they often cost much more than they were worth. The French instead of throwing themselves directly, upon villages held by the Allies, and thus losing both men and time occupied the heights commanding them, separated their defenders from the rest of their army and took them

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* Hougoumont, Solferino, Ligny.

[1] Hamley, Part VI., Chap. III.

afterwards at a small cost by an attack in flank or rear, combined with a direct one. The flank attack was generally supported by cavalry, destined to sustain the infantry, should it find itself in a dangerous position.[1]

7. The importance of advanced posts, like Hougomont, * * confer a further advantage on their possessor, exemplified at Waterloo, that of enabling him to throw forward a portion of the line, till it rests on the post, and so to enclose the enemy's columns of attacks. Unless, therefore, they stand so far asunder that the attacks can be made between them, beyond the effective range of either, it will be usually imperative to master one or more of these, as the preliminary to an attack upon the line of battle. If such posts exist *in* the line of battle, it will be well to direct the attack elsewhere, seeking rather to master some neighbouring commanding ground, or to reach the rear of the post, than to incur the certain losses of a front attack. The French left at Austerlitz, avoiding the fortified hamlets of Kruh and Holubitz, occupied by Russian battalions, easily captured them by mastering the surrounding heights.[2]

8. There are four different periods before gaining possession of a village, viz.:—

(1) The conquest of the enceinte and the outlets.

(2) The establishment of the troops on these points, when taken.

(3) The overthrow of the reserves.

(4) The fortified post in our possession.

The capture of the outskirts is not a very great advantage; but the thing is to keep them. But when all this is done, and we have gained the opposite outskirts of the village, our next duty is to rally our scattered and exhausted troops.[3]

9. Villages, commanded by the neighbouring ground, within musket-range, whose houses are much scattered and which have numerous and wide spaces for ingress, can seldom be occupied with advantage. Villages built of wood, are ill adapted for defence, for they can easily be set on fire; those built of stone, having the houses grouped together,

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[1] Ambert. [2] Hamley, Part VI., Chap. IV. [3] Decker.

and the gardens surrounded with walls or strong hedges, are the best fo military posts. When an officer is detached to occupy a village, his firs care should be to push forward his guards and advanced posts, pro ceeding immediately to barricade all the entrances on the side of th enemy, excepting only a few small and concealed places of egress. H should next break up the roads by which the enemy can approach th post; have loop-holes made in all the walls of the gardens, or house which his force may enable him to occupy; demolish or burn detache houses, which would afford the enemy shelter, or mask the defender fire, and fell all trees, which, when felled, would obstruct the attack, o if left standing would impede the defence. * * * * If intrenching tools are wanted, the officer will put in requisition every thing of the kind the village or neighbourhood can provide.[1]

10. 'In the defence of places, the Prussians' distribute expe marksmen, who, placed at the windows, single out the officers; bu the main defence is at the outskirts of the village, in the garden behind the fences, walls, and enclosures; with some companies i column on the flanks, and a reserve in the centre of the place, a much as possible in one spot, if it is sufficiently large. This syste appears preferable to that of the Austrians, who shelter the defender inside the buildings; crowded and confined, they escape from th observation and directions of their officers, and in case of a chec are generally all surrounded and made prisoners.[2] * *

11. The artillery, 'in the defence,' is placed outside, on the flanks, t command the points likely to be attacked. The openings and outlets o the streets on the side of the enemy, are barricaded with carriage boxes, casks filled with earth, manure, bales, stakes, chains, abatis, & These barricades ought to be flanked by the neighbouring houses, whic should be loop-holed.[3]

12. All walls and hedges within musket range, behind which th enemy might conceal himself, should be destroyed, and all ditche parallel to the works be filled up, unless they are wet ones; observin always not to destroy walls or hedges, &c., which will impede th enemy's flank movements, or check him under fire. In the interio on the contrary, those walls which obstruct the lateral movements shoul

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[1] Macaulay. [2] Heintz. [3] Prevost.

be broken through, in order to open free communications, and for the same purpose bridges must be thrown over the ditches. The hedges and walls which will serve to connect the principal intrenchments, should be preserved; sometimes they form the only defences, and then care should be taken to preserve those which flank each other. If the village be traversed by a stream, advantage may be taken of it, to form an inundation; if the stream extend round part of the village, its waters may be retained by a dam, protected by a small intrenchment, or the arches of a bridge may be closed up, so as to make it act as a dam.[1]

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[1] Macaulay.

CHAPTER VII.

SECTION I.

MARCHES PRECEDING BATTLES.

1. The whole secret of war consists in *marching*, or as Marshal Saxe says, "in the legs."

Marches prepare victories; *battles* decide them; *pursuit* completes them.[1]

2. "The strength of an army, like the power of mechanics, is estimated by multiplying the mass by the rapidity; a rapid march augments the *morale* of an army, and increases all the chances of victory."[2]

3. General Robert Crawfurd reached the English camp, after the battle of Talavera, with the 43rd, 52nd, and 95th or Rifle Regiment, and immediately took charge of the outposts. These troops, after a march of twenty miles, were in bivouac near Malpartida de Plasencia, when the alarm, caused by the fugitive Spanish, spread to that part. Crawfurd allowed the men to rest for a few hours, and then, withdrawing about fifty of the weakest from the ranks, commenced his march with the resolution not to halt until he reached the field of battle. * *

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Leaving only seventeen stragglers behind, in twenty-six hours they had crossed the field of battle in a close and compact body, having, in that time, passed over sixty-two English miles, and in the hottest season of the year, each man carrying from fifty to sixty pounds weight upon his shoulders.[3]

4. The rapid concentration of the Prussian army 'in 1866,' produced some feats in marching which were quite extraordinary for troops who had only just taken the field. The 5th Pomeranian Hussars marched three days successively for long distances, and on the 22nd made fifty English miles; they were again on the line of march on the 24th, with horses in excellent condition, and the men looking as if they had only just turned out of barracks.[4]

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[1] Hand-Book. [2] Napoleon. [3] Napier, Vol. II. [4] Hozier, Vol. I.

5. The French being a light-hearted nation, and being also lightly equipped, were decidedly the most expeditious marchers. The famous forced marches of upwards of thirty miles for three consecutive days, by which Napoleon brought an army to the relief of Dresden, and in a state to fight a battle, with scarcely a night's rest intervening, will establish their claim to this encomium.[1]

6. There are also marches executed in presence of the enemy, with your army entirely united, formed and ready to fight, having the design of causing the enemy to leave a position which he is occupying. These marches belong to tactical movements; nothing demands greater attention or exacts greater precautions. To execute a movement of this kind, the troops must be well disciplined and thoroughly drilled, the generals vigilant and active, and the commander possessed of extreme foresight.[2]

Manœuvres previous to the Battle of Salamanca.

7. The hostile armies in July, 1812, faced each other on the Douro. Marmont's line, in case of retreat, lay through Valladolid and Burgos. Wellington could regain his base in Portugal only by the road from Salamanca to Ciudad Rodrigo. The French front extended from Toro on the right to the Pisuerga on the left, and was there thrown back along the course of the river. Wellington's right was at Rueda, his left on the Guarena. Thus each army, in the existing position, covered its communications. Marmont, on the 15th and 16th, suddenly moved his army on Toro, and began to cross there. Wellington knew of this movement on the 16th, and prepared to meet it by uniting his centre and left at Canizal during the night. Marmont, then, had turned Wellington's left, and by persisting in an advance from Toro upon Salamanca, he would reach that place as soon as his adversary. Wellington must therefore break through or be lost. He would attack the French on the march; they would form in order of battle to meet him, and the fronts of both armies would be parallel to the road from Toro to Salamanca. Both armies would be in a flank position—either would be ruined by defeat. A French victory would cut Wellington from

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[1] Cathcart. [2] Marmont.

Portugal, and throw him back on the Castilian mountains and the arm of King Joseph. An English victory would cut Marmont from Tor and drive him back on the Douro, and the difficult hostile country the Tras-os-Montes. It was not Marmont's design to bring matters t such a desperate issue. His movement on Toro had been a feint t induce Wellington to make a corresponding movement, and so leave th bank of the river at Pollos and Tordesillas open. He counter-marche on the 17th behind the river, crossed it at those two places, an occupied Nava del Rey, where his whole army was concentrated th night.[1]

8. 'Passing the Douro on the 17th of July, on the 18th Marmon who had ascertained that a part only of Wellington's army was befo him,' crossed the Trabancos in two columns, and passing by Alaej turned the left of the Allies, marching straight upon the Guarena. Th British retired by Torecilla de la Orden, the fifth division being in on column on the left, the fourth division on the right as they retreated, an the light division on an intermediate line, and nearer to the enemy. Th cavalry were on the flanks and rear; the air was extremely sultry, th dust rose in clouds, and the close order of the troops rendered it ver oppressive, but the military spectacle was very strange and grand. Fo then were seen the hostile columns of infantry, one half musket-sho from each other, making impetuously towards a common goal, th officers on each side pointing forwards with their swords, or touchin their caps, and waving their hands in courtesy; while the Germa cavalry, huge men on huge horses, rode between in a close compact bod as if to prevent a collision. At times the loud tones of comman to hasten the march, were heard passing from the front to the rear, an now and then the rushing sound of bullets came sweeping over th columns, whose violent pace was continually accelerated. Thus movin for ten miles, yet keeping the most perfect order, both partie approached the Guarena, and the enemy seeing that the light divisio although more in their power than the others, were yet outstrippin them in the march, increased the fire of their guns and menaced a attack with infantry. But the German cavalry instantly drew clos round, the column plunged suddenly into a hollow dip of ground on th

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[1] Hamley, Part III, Chap. III.

left, which afforded the means of baffling the enemy's aim, and ten minutes after the head of the division was in the stream of the Guarena, between Osmo and Castrillo. The fifth division entered the river at the same time, but higher up on the left, and the fourth division passed it on the right. The soldiers of the light division, tormented with thirst, yet long used to their enemy's mode of warfare, drank as they marched, and the soldiers of the fifth division stopped in the river for only a few moments, but on the instant forty French guns, gathered on the heights above, sent a tempest of bullets amongst them. So nicely timed was the operation. The Guarena, flowing from four distinct sources, which are united below Castrillo, offered a very strong line of defence, and Marmont, hoping to carry it in the first confusion of the passage, and so seize the table-land of Vallesa, had brought up all his artillery to the front; and to distract the Allies' attention, he had directed Clauzel to push the head of the right column over the river at Castrillo at the same time. But Wellington expecting him at Vallesa from the first, had ordered the other divisions of his army, originally assembled at Canizal, to cross one of the upper branches of the river; and they reached the table-land of Vallesa before Marmont's infantry, oppressed by the extreme heat and rapidity of the march, could muster in strength to attempt the passage of the other branch. Clauzel, however, sent Carier's brigade of cavalry across the Guarena, at Castrillo, and supported it with a column of infantry; and the fourth division had just gained the heights above Canizal, after passing the stream, when Carier's horseman entered the valley on their left, and the infantry in one column menaced their front.[1]

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9. The French general had passed a great river, taken the initiatory movement, surprised the right wing of the Allies, and pushed it back about ten miles. Yet these advantages are to be traced to the peculiarities of the English general's situation, which have been already noticed, and Wellington's tactical skill was manifested by the extricating of his troops from their dangerous position at Castregon without loss, and without being forced to fight a battle. He, however, appears to have erred in extending his troops to the right when he first reached the Douro, for seeing that Marmont could at pleasure pass that

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[1] Napier, Vol. V.

river and turn his flanks, he should have remained concentrated on the Guarena, and only pushed cavalry posts to the line of the Douro above Toro. Neither should he have risked his right wing so far from his main body, from the evening of the 16th to the morning of the 18th. He could scarcely have brought it off without severe loss, if Marmont had been stronger in cavalry, and instead of pushing forward at once to the Guarena, had attacked him on the march. On the other hand, the security of the French general's movements, from the Trabancos to the Guarena, depended entirely on their rapidity; for as his columns crossed the open country on a line parallel to the march of the Allies, a simple wheel by companies to the right would have formed the latter in order of battle on his flank, while the four divisions already on the Guarena could have met them in front.[1]

SECTION II.

THE MARCH OF COLUMNS.

1. When an army marches in several separate columns along separate roads, within reach of the enemy, it is highly important that each column should be strong enough to defend itself until it can obtain a reinforcement from the others; and that there should be communications between the roads followed by the several columns, to allow these reinforcements being sent. Neglect of these precautions led to the disasters experienced by the Archduke John, at Hohenlinden, 3rd December, 1800. His army was formed into four columns, which had to cross the vast forest of Ebersberg, at the debouch of which Moreau had united the French army. The Austrians advanced, during fearful weather, through a thick forest, their columns having no means of communication with each other; the principal column was first attacked, both in front and rear, and, being unable to deploy, was cut to pieces; the other columns were successively attacked

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[1] Napier, Vol. V.

and shared the same fate; and the army had to retire with the loss of 12,000 men and 100 pieces of cannon. The Austrians, however, did not profit by this severe lesson; for the general, who had counselled this unconnected movement, repeated it with the Austro-Russians at Austerlitz, where it had no better success.[1]

2. No fixed rules can be given as to the minutiæ of an order of march which depends on so many different circumstances; but three principles should be strictly attended to.[*]

(1) The several branches of the service should afford each other mutual protection, and their position on the line of march should depend on the nature of the country.

(2) The order of march should be such, that by short, simple, and rapid movements, it can become the order of battle.

(3) That at no time, and under no pretext whatever, should the slightest deviation from the strictest discipline be permitted. For, once it has been allowed, the soldier will almost claim it as a right.[2]

3. In England the country is so generally cultivated, and the arable and pasture lands are so intermixed, that the fields are fenced on every side to keep the cattle from the crops; and it would be difficult to find spaces of any extent where armies would not be restricted to the road while marching, or where they could easily form front for battle. But in large districts of the Continent cattle are kept in stalls, and the crops are not separated by fences, while the chief causeways are thrice the width of our main roads. In such countries armies move on a large front; the columns of infantry and cavalry in the fields in dry weather, the artillery and trains on the roads. Thus Belgium and the east of France are a succession of rolling plains, where the streams and ditches are the only impediments. In other parts of Europe, whole districts are devoted to pasture, as in Hungary and parts of Spain, and these great plains are equally free from obstacles. On the other hand, North Italy is highly cultivated, and scarcely any plains are to be found there. The numerous rivers feed a multitude of canals of irrigation; the rich soil of the fields is too soft for marching on; olive groves and

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[*] Lallemand Oper. Secondaires de la Guerre.

[1] Jervis. [2] *Ibid.*

festoons of vines add to the difficulties of forming on a large front, and troops on the march are for the most part restricted to the raised roads.[1]

4. A column of 30,000 men, not comprising the artillery, occupies about three miles. It would require two hours to range it in line of battle on two lines, and to allow of this, the advanced guard should precede it by five miles.[2]

5. Each column should have its own advanced guard and flankers, that its march may be conducted with the usual precautions: * * The army on the march is often preceded by a general advanced guard, or, as is more frequent in the modern system, the centre and each wing may have its special advanced guard. It is customary for the reserves and the centre to accompany the head-quarters, and the general advanced guard when there is one, will usually follow the same road: so that half the army is thus assembled on the central route. Under these circumstances, the greatest care is requisite to prevent obstructing the road. It happens sometimes, however, when the important stroke is to be made in the direction of one of the wings, that the reserves, the general head-quarters, and even the general advanced guard, may be moved in that direction; in this case, all the rules usually regulating the march of the centre must be applied to that wing.[3]

6. "The first great distinction between a march of this kind and an ordinary march is, that whereas, in general, a long train of supplies and baggage must follow the columns, an army moving to battle disencumbers itself of all that is not essential for feeding and fighting during the day or days of conflict. Men and horses carry with them one or two days' food; spare ammunition must be at hand; all else may, for the moment, be stored in the rear. Thus stripped for the struggle, columns, each of a corps or division, advance upon such roads as will at once lead them on the enemy, and keep them within deploying distance of each other. If the commander has been enabled, by reconnaissance and intelligence of the enemy's dispositions, to determine his order of battle, it will be a great advantage; for, according as a wing or centre is to be reinforced, the troops can, at the outset of the march, be directed on the the roads, which will bring them to their destined positions in the line.

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[1] Hamley, Part V., Chap. I. [2] Hand-Book. [3] Jomini, Chap. VI., Art. 41.

The divisions and the cavalry will be accompanied by their own batteries; the reserve artillery will generally follow a central column, if the road be good.

The army will be preceded by an advanced guard.

Compactness being now of the highest importance, all the arms of a column will move in close order, and on as large a front as is consistent with leaving part of the road free for the transmission of orders, and the going about of cavalry or guns. The column may be formed thus in an average country:—

(1) A battery, because its fire will be required to keep the enemy at a distance during the first deployments—preceded, however, by a few horse.

(2) A brigade or division of infantry.

(3) A battery, preceding another brigade or division of infantry.

(4) The cavalry of the column. This is not placed more forward; first, because cavalry of itself cannot defend itself, as infantry can, under all circumstances: and, secondly, because its speed will always enable it to reach the line of deployment, or point where it is to act, as soon as the majority of the infantry.

(5) The remaining batteries of the column.

(6) The rear guard.

When the nature of the country dictates that masses of cavalry should be on one wing, or on both wings, they will march, accordingly, on one or both flanks, in adjoining columns, not intermixed, either laterally or longitudinally, with infantry. Such was the order in Davoust's march to Eckmuhl, when his cavalry covered his left flank, his right being protected by the Danube.

In all cases the columns will be incessantly connected by light troops extended in skirmishing order throughout their front; and advantage must be taken of all cross-roads to maintain concert and exchange intelligence during the movement.

Meanwhile the advanced guard, marching at a certain distance ahead, will, presumably, prevent the heads of columns from being suddenly attacked, or from being separated by an advance of the enemy.

On approaching a position which the enemy may be supposed to occupy, or to be seeking to occupy, the main columns subdivide into other smaller columns, and all strike out for themselves routes as direct as possible towards their destined positions in the line, endeavouring, at the same time, to preserve due intervals of deployment, and always maintaining their connection. But as an attempt to move for any distance in columns so small and numerous as to be in order of battle, or nearly so, would create confusion and delay at every impediment, it is inexpedient to separate farther than into brigades of the first, each followed by its brigade of the second, line, the divisional artillery still accompanying, if possible, its own brigades. Each column will be preceded by pioneers, to clear the road of obstacles, throw planks across ditches or rivulets, repair bad parts of the track, cut away the steep banks of fords for the passage of cavalry or guns, and, under the direction of staff officers, shorten the routes by levelling fences and cutting paths."[1]

7. "The *chaussée* leading from Görlitz to Zittau is broad enough to allow four carriages to pass. The march 'of the Prussians in 1866' was excellently arranged; there was no confusion, and no halts had to be made, except those which were necessary to allow the men rest. The carriages of the military train were scrupulously kept to one side of the road, so as to leave the rest clear for the troops. Its own baggage marched in the rear of each battalion, but it was not much; only one waggon with the reserve ammunition, a cart for the officers' baggage, three or four pack-horses to carry the paymasters' books and the doctors' medicine carts. * * * * * * *

The march of the 23rd was different from that of the preceding day; it was a march which showed that the enemy might be found in front. The heavy baggage and reserve commissariat transport was all a day's march in rear; the only carriages which were present in the column of route were the guns and waggons of the artillery, the hospital carriages, and the few waggons which are necessary to regiments when actually about to fight.

The advanced posts, on the evening of the 23rd, were pushed forwards about seven miles; there were vigilant patrols and pickets out, and all was provided for against a surprise. These precautions are of course always necessary with an army in the field; in the present case their utility was not put to the test, for the Austrians were not in force in the neighbourhood."[1]

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[1] Hamley, Part VI., Chap. VI.

8. Two armies marching, as they formerly did, with all their camp equipage, and meeting unexpectedly, could do nothing better at first than cause their advanced guard to deploy to the right or left of the roads they are traversing. In each army, the forces should at the same time be concentrated, so that they may be thrown in a proper direction considering the object of the march. A grave error would be committed in deploying the whole army behind the advanced guard; because, even if the deployment were accomplished, the result would be nothing more than a badly arranged parallel order, and if the enemy pressed the advanced guard with considerable vigour, the consequence might be the route of the troops which were forming. In the modern system, when armies are more easily moved, marching upon several roads, and divided into masses which may act independently, these routes are not so much to be feared; but the principles are unchanged. The advanced guard must always be halted and formed, and then the mass of the troops concentrated in that direction which is best suited for carrying out the object of the march. Whatever manœuvres the enemy may then attempt, everything will be in readiness to meet him.[2]

March of the Austrian, and of the French and Sardinian Armies, previous to the Battle of Solferino, in June, 1859.

9. A reconnaissance on the 22nd reported the French main body still beyond the Chiese, and on the 23rd the march began, the greater part of it being allotted for the first day's work. The Emperor Francis Joseph and his staff slept at Valeggio, and the march was to be resumed at nine o'clock in the morning. An action might take place in the evening, but was not for a moment thought of early in the day; in any case, the right wing was to engage first, and the left wing coming up at the proper time would ensure the victory. The Austrians had

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[1] Hozier, Vol. I.

[2] Jomini, Chap. IV., Art. 32.

pushed forward no reconnaissance on the 23rd, beyond the ordinary outposts; neither had Louis Napoleon; but he had made use of an expedient seldom resorted to, though not entirely new—observation from a balloon. The first ascent was made at Castenedolo on the 21st, another on the 23rd. The distance was too great to learn much, for the Austrians were ten or twelve miles even from Montechiaro, and it requires a powerful glass, combined with favourable circumstances, to distinguish infantry from cavalry at five miles; but the observers might, and probably did, perceive long lines of approaching dust. This would be enough to indicate that some important movement was taking place. It is admitted that Louis Napoleon was aware of strong columns having crossed the Mincio, but he expected nothing more than a strong reconnaissance.

On the evening of the 23rd his forces bivouaced in a line from Desenzano on the Lake of Garda to Mezzano on the Oglio; the appointed routes for the various corps on the 24th were as follows:—

Four Piedmontese divisions, from Desenzano and Lonato to Pozzolengo by Rivoltella and Madonna della Scoperta.

1st corps (Baraguay d'Hilliers) from Esenta to Solferino; one division by the direct mountain road through Astore, the other two by Castiglione.

2nd corps (M'Mahon) from Castiglione to Cavriana, by the Guidizzolo road for the first four miles.

4th corps (Niel) from Carpenedolo to Guidizzolo by Medole. The cavalry regiments attached to the different corps were formed into two divisions under Generals Partouneaux and Des Vaux, and accompanied this corps.

3rd corps (Canrobert) from Mezzano on the left bank, to cross the Chiese by a pontoon bridge near Visano, and proceed to Medole by Castel Goffredo.

Imperial Guard (d'Angely) was in rear of the rest at Montechiaro, and to march to Castiglione.

The cavalry of the guard and artillery, 36 squadrons and 8 batteries, were still further back at Castenedolo, fourteen miles from the plain of Medole. At Piadena on the Oglio, fifteen miles south of the battle-field, was Autemarre's division of Prince Napoleon's corps, intended to join the rest of the army at the Mincio. Its presence there, unexpected by the Austrians, embarrassed Liechtenstein at Marcaria, and had thus some effect on the battle. The appointed lines of march for the two armies on the 24th actually crossed one another, so that a collision was inevitable, and the outposts were already so close that it must necessarily begin at an early hour. The French had 168 battalions and 96 squadrons, which, at a similar calculation of strength to that at Magenta, and with artillery included, would be 120,000 men. The four Piedmontese divisions would be 40,000, and the whole would amount to 160,000 men. The Austrian battalions engaged numbered 156 (those of the 2nd corps not included), and there were 68 squadrons accompanying them; these, reduced like the others from the normal strength, would, with artillery, be 140,000; but as many of them had neither endured long marches or been under fire, this is certainly too low an estimate for the whole, and they were quite equal, if not superior, in number to the Allies.[1]

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10. The leading French troops started at two o'clock a.m., to avoid the heat of the day. At early dawn, the first shots of an outpost, a mile-and-a-half from Castiglione, opened the battle; others were soon heard extending right and left, until a line from San Martino to Castel Goffredo, eleven miles long, would indicate very nearly that of the first encounters. At the first sound of a cannonade, Louis Napoleon hastened from Montechiaro towards Castiglione. He received, on the way, reports which convinced him that no reconnaissance, but a great battle was to be dealt with, and he shaped his measures accordingly. The allied columns were moving along seven different roads; and as the whole of the Imperial Guard, infantry, cavalry and artillery was in rear, there were only 130,000 men to a front which was then twelve miles extent. The first step, therefore, was to send orders for the right and left to close as much as they could to the centre, and for the Guard to hasten its movements; the next was to study the enemy's line of battle, to discover his weak points, and to direct his own forces upon them. The village of Solferino appeared to be the place whose capture would give the best results, and arrangements for its attack would be in accordance with the orders already issued; it was therefore decided upon. This

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[1] Lieut.-Colonel Miller.

resolution was adopted, and the intention communicated to the corps' commanders very early in the day; but it was some time before any result could ensue. On the extreme left, at San Martino, the 3rd and 5th Piedmontese divisions were over-matched; the next, at Madonna della Scoperta, was also thrown back. So far from assisting the centre, these three divisions drew the other way from it for their own support. Fortunately, the Austrians also were weak in numbers on this side, and could not pursue the advantages they gained. Baraguay d'Hilliers' corps was directed on Solferino by the original order of march, and may be considered the centre which the others were to approach. M'Mahon, who stood next, had large forces opposite himself, and could not lessen the space between the centre and the 2nd corps, without, at the same time, opening an equally dangerous interval between the 2nd and 4th corps; he could only deploy across the Guidizzolo Road, which he was moving along, and maintain himself for the present in that position. Niel was anxious to assist; but he, in his turn, was dependent on Canrobert, who had been instructed by the Emperor to support him, but at the same time to guard against a large body of Austrians approaching him from the direction of Mantua.[1]

SECTION III.

FLANK MARCHES.

1. Nothing is so rash, or so contrary to principle, as to make a flank march before an army in position, especially when this army occupies heights at the foot of which you are forced to defile.[2]

2. Flank marches have always been held up as very dangerous; but nothing satisfactory has ever been written about them. If by the term *flank marches* are understood tactical manœuvres made upon the field of battle in view of the enemy, it is certain that they are very

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[1] Lieut.-Colonel Miller.

[2] Napoleon.

delicate operations, though sometimes successful; but if reference is made to ordinary strategic marches, I see nothing particularly dangerous in them, unless the most common precautions of logistics be neglected. In a strategic movement, the two hostile armies ought to be separated by about two marches (counting the distance which separates the advance guards from the enemy and from their own columns). In such a case, there could be no danger in a strategic march from one point to another. There are, however two cases where such a march would be altogether inadmissible: the first is where the system of the line of operations, of the strategic lines, and of the front of operations is so chosen, as to present the flank to the enemy during a whole operation. This was the famous project of marching upon Leipsic, leaving Napoleon and Dresden on the flank, which would, if carried out, have proved fatal to the Allies. It was modified by the Emperor Alexander upon the solicitations of Jomini. The second case is where the line of operations is very long (as was the case with Napoleon at Borodino), and particularly if this line affords but a single suitable route for retreat: then every flank movement exposing this line would be a great fault.[1]

3. On perfectly open ground such a movement—'a flank march near the enemy'—might be accomplished by marching to a flank in order of battle—that is, in three columns formed of the two lines and the reserve, with an advanced guard protecting the outward flank (flank towards the enemy). But the question is of making a march of this kind in an average broken or enclosed country, where very lengthened columns, especially of cavalry and artillery, could not without great risk offer their flank to the enemy. The column of cavalry, as being least able to fight singly, should not be on the outer flank. In case of a small force, say of a division, making such a movement, it might be done in three columns,—the infantry on two lines next the enemy, the cavalry and reserve artillery on the inner flank. But with a considerable force—a corps or wing—the first and second line and reserves of infantry should each form a column, followed and preceded by portions of their own artillery. The order of march of the columns of the main body, then, would be in this order, beginning on the flank next the enemy:—

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[1] Jomini, Chap. III., Art. 24.

(1) A division of infantry (being the first line), preceded and follow by its own artillery, and at intervals by an advanced and rear guard mixed arms; pioneers clearing the march.

(2) A division (being the second line) of infantry in the same order.

(3) The division of infantry of the reserve. (If the general reser of the army is otherwise provided for, this column will be divid between the two former).

(4) Cavalry with its own artillery.

(5) Cavalry and reserve artillery.

These columns should preserve intervals not greater than those whi should exist in the line of battle between the first and second lines a the second line and reserve; and the column next the enemy must the column of direction—that is, must govern the movements a distances of the rest. Meanwhile an advanced guard of all arms shou move between the corps and the enemy, constantly flanking it, a occupying all defiles by which the enemy might issue on the flank the columns. Thus, while the Prussians marched from Wavre to t field of Waterloo, the advanced guard on their flank closed the passag of the Dyle against Grouchy. When a corps is moving thus to a fla it will be of immense importance to decide whether it is to form line battle to a front or flank, relatively to the rest of the army and to t enemy. Thus Bulow's march to the field of Waterloo was a fla march; but, for the attack on the French flank, the order of march *a front*, was the proper formation for his columns.[1]

Prussian flank march, on 18th June; on Waterloo.

4. The country between Wavre and the field of Waterloo resembl in its character certain well known parts of Devonshire, being brok into rounded hills, with patches of wood upon their slopes, and travers by lanes deep and miry in the hollows. The chief cross-road is th which passes over the highest of the hills (on which stands the co spicuous church of St. Lambert) directly down into the valley of t

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[1] Hamley, Part VI., Chap. VI.

Lasne, at a village of the same name, and ascending again to Plancenoit, leads on to the Brussels and Charleroi-road near to the farm of Caillou, where Napoleon's head-quarters were established on the night of the 17th. A similar road, more to the north, conducts more directly by Froidmont and Ohain on to the crest which formed the front of the English position. On both of these the Prussians had started early to take their share in the battle. Bulow was to lead, followed by Pirch along the former road; Zieten to take the line to Ohain. Thielemann was ordered to act as rear guard and cover the movement, and in case of no enemy appearing at Wavre, to follow finally on Plancenoit. But Bulow, was some miles on the wrong side of Wavre, and his first brigade had hardly got clear of the town, when a fire, breaking out in the narrow street through which his corps defiled, stopped the rest of the troops for nearly two hours. A further delay arose from the passage of Zieten's corps on their way to the northern road, crossing that to St. Lambert, occupied by the other column. Moreover the troops, drenched and tired the night before, were not originally started until seven a.m. So considerable were the delays from these causes, added to the wretched nature of the roads, that it was three p.m. before the tail of Bulow's column reached St. Lambert, although his leading brigade had been there before noon. It was plain, therefore, that the Prussians could take no share in the early part of the great battle, and that Wellington must bear the full brunt until the afternoon wore some hours on.[1]

5. Before 'the attack at half-past one, on the English left centre, had taken place by the corps of D'Erlon,' there had been seen on the hill of St. Lambert a body of troops, of strength and nation unknown, but which could only be part of Grouchy's force, or some detachment of Prussians. Napoleon could not have attached any serious importance to this apparition at first, since he made no effort to stop the strange corps, beyond sending to his right two divisions of light cavalry amounting to 2400 sabres. He was not long in ignorance. A Prussian non-commissioned officer of Hussars was taken and brought in with a letter from Bulow, announcing his arrival at St. Lambert, and requesting Wellington's instructions; for this messenger had left before

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[1] Chesney, Lect. VI.

Müffling's despatch, sent for their guidance, could have been delivered to the Prussian staff.

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Bulow had advanced, with half his corps, and soon forced back the light cavalry which covered Lobau, and engaged the infantry of that general. An hour later (at half-past five) the whole of the Prussian corps, 29,000 strong, was on the ground; Lobau, after a brave resistance, was forced back on Plancenoit, and the Prussian guns were within range of the Brussels-road. Zieten meanwhile, by the same hour, had made his way along the road through Ohain; and his leading division, under Steinmetz, followed by the cavalry of the corps, approached the extreme left of Wellington, which rested on the building called Papelotte.[1]

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[1] Chesney, Lect. VI.

CHAPTER VIII.

RETREATS AND PURSUITS.

1. It is not without justice, that great praise has always been accorded to retreats, made in presence of a superior enemy; this is one of the most delicate and hazardous operations of war. The principal difficulty lies in the *morale* of the troops, which becomes much impaired in these circumstances; it is a singular thing,—the different impression produced upon the soldier, when he looks the enemy in the face, and when he turns his back upon him. In the first case, he only sees what really exists; in the second, his imagination increases the danger. A general must then inspire his troops with pride and a just confidence, and present these sentiments to them as a powerful means of safety.[1]

2. A retreat conducted in presence of a superior force with all the order, dispositions, coolness, and prudence which circumstances permit, is one of the things which particularly denote the real soldier: it is one which deserves to be specially noticed by general officers, and which is best calculated to gain their confidence for more important enterprises. It is under such constantly varying circumstances that an intelligent and brave officer soon finds an opportunity of distinguishing himself.[2]

3. It often happens, that an army decamps silently during the night, without beat of drum or sound of trumpet; this is called "stealing a march." Whatever may be the reason for thus silently decamping, it is always sought to conceal it from the enemy; and with this object the pickets are left on the ground till daylight. On such occasions the pickets must be kept on the alert, seeing that if the departure of the army is discovered by the enemy, the pickets must expect to be immediately attacked. The lateral patrols should be constant, and so frequent, that there shall be always several on foot at the same time, so as to prevent spies and deserters from breaking through and informing the enemy of what is going on, and also to prevent his patrols from approaching near enough to find it out for themselves.[3]

4. Sir John Moore, had given orders to retreat the moment the intelligence of Napoleon's march from Madrid reached him. The heavy

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[1] Marmont. [2] Jarry. [3] *Ibid.*

baggage and stores had been immediately moved to the rear; but the reserve, the light brigades, and the cavalry remained at Sahagun; the latter pushing their patrols up to the enemy's lines and skirmishing, with a view to hide the retrograde march.[1]

5. If the fires should become dim and begin to go out sooner than usual, some movement of the enemy may be presumed. If the fires are much larger and more brilliant than usual, it may be presumed that he has decamped, because it often happens that the servants and women and other camp followers set fire to the straw in the camp, and to the suttler's huts, either by accident or purposely, and then the fire spreads to every part of the camp. It is the business of those who decamp during the night to take the necessary measures to provide against this, and also to prevent the enemy from discovering the departure of the army by the fires going out sooner than usual; it is therefore customary to leave small detachments of infantry for the purpose of keeping up the fires of the camp-guards along the whole front till near daybreak. As everything that ought to be done is not always done, the officers of the picket should look to all these matters.[2]

6. When the retreat is actually begun, it is no less difficult to decide whether a forced march shall be made to get as much the start of the enemy as possible,—since this hurried movement might sometimes cause the destruction of the army, and might, in other circumstances, be its salvation. All that can be positively asserted on this subject is that, in general, with an army of considerable magnitude, it is best to retreat slowly, by short marches, with a well arranged rear guard of sufficient strength to hold the heads of the enemy's columns in check for several hours. Retreats are of different kinds, depending upon the cause from which they result. A general may retire of his own accord before fighting, in order to draw his adversary to a position which he prefers to his present one. This is rather a prudent manœuvre than a retreat. It was thus that Napoleon retired in 1805 from Wischau towards Brunn, to draw the Allies to a point which suited him as a battle-field. It was thus that Wellington retired from Quatre Bras to Waterloo.

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A general may retire in order to hasten to the defence of a point threatened by the enemy, either upon the flanks or upon the line of retreat. When an army is marching at a distance from its depôts, in an exhausted country, it may be obliged to retire in order to get nearer its supplies. Finally, an army retires involuntarily after a lost battle, or after an unsuccessful enterprise.[1]

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[1] Napier. [2] Jarry.

7. When a retreat becomes inevitable, it is well to conceal the design by partial attacks. The second line relieves the first, which withdraws by alternate battalions or wings of battalions. The artillery should withdraw by parts not less than batteries, as alternate guns, or half batteries, would not command sufficient width of front to open fire after withdrawing, without risk to those that had remained to cover the movement. A rear guard of the freshest troops available is organized as soon as possible; the victorious army, which cannot long move in order of battle, but must form columns to pursue, is checked till it can again deploy; the rear guard performs the functions formerly described as proper to it; at the first defensible line the retreat is stopped, and the army restored to order, and as much as possible to confidence, and again confronts the enemy. Such is the history of a well-conducted retreat.[2]

8. There are five methods of arranging a retreat:—

The first is to march in a single mass and upon one road.

The second consists in dividing the army into two or three corps, marching at the distance of a day's march from each other, in order to avoid confusion, especially in the *matériel.*

The third consists in marching upon a single front by several roads, nearly parallel, and having a common point of arrival.

The fourth consists in moving by constantly converging roads.

The fifth, on the contrary, consists in moving along diverging roads.

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When Napoleon retired from Smolensk, he used the second method, having the portions of his army separated by an entire march. He made therein a great mistake, because the enemy was not following upon his rear, but moving off along a lateral road which brought him in a nearly perpendicular direction into the midst of the separated French corps. The three fatal days of Krasnoi were the result. The employment of this method being chiefly to avoid encumbering the road, the interval between the departure of the several corps is sufficiently great when the artillery may readily file off. Instead of separating the corps by a whole march, the army would be better divided into two masses and a rear guard, a half march from each other.

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[1] Jomini, Chap. V., Art. 38.

[2] Hamley, Part VI., Chap. IV.

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The third method, of retreating along several parallel roads, is excellent when the roads are sufficiently near each other. But, if they are quite distant, one wing separated from the centre and from the other wing, may be compromised if the enemy attacks it in force, and compels it to stand on the defensive. The Prussian army moving from Magdeburg towards the Oder, in 1806, gives an example of this kind. The fourth method, which consists in following concentric roads, is undoubtedly the best if the troops are distant from each other when the retreat is ordered. Nothing can be better, in such a case, than to unite the forces; and the concentric retreat is the only method of effecting this. The fifth method indicated is nothing else than the famous system of eccentric lines, attributed by Jomini to Bulow, and opposed so warmly in the earlier editions of his works, because he thought he could not be mistaken either as to the sense of his remarks on the subject, or as to the object of his system. * * *

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Jomini found great fault with the system, for the simple reason that a beaten army is already weak enough, without absurdly still further dividing its forces and strength in presence of a victorious enemy. Bulow has found defenders who declare that Jomini mistook his meaning. * * * * *

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Jomini,—'then admitted'—he may possibly have taken an incorrect impression from his language, and, in this case his criticism falls to the ground; for he has strongly recommended that kind of a retreat to which he has given the name of the parallel retreat. It is his opinion that an army, leaving the line which leads from the frontiers to the centre of the state, with a view of moving to the right or the left, may very well pursue a course nearly parallel to the line of the frontiers, or to its front of operations and its base.

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'He then added,'—I find fault only with those retreats made along several diverging roads, under pretence of covering a greater extent of frontier and of threatening the enemy on both flanks.

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There are two cases in which divergent retreats are admissible, and then only as a last resource. First, when an army has experienced a great defeat in its own country, and the scattered fragments seek protection within the walls of fortified places. Secondly, in a war where the sympathies of the whole population are enlisted, each fraction of the army thus divided may serve as a nucleus of assembly in each province; but in a purely methodical war, with regular armies carried on according to the principles of the art, divergent retreats are simply absurd. There is still another strategical consideration as to the direction of a retreat,—to decide when it should be made perpendicularly to the frontier and toward the interior of the country, or when it should be parallel to the frontier. For example, when Marshal Soult gave up the line of the Pyrenees in 1814, he had to choose one of two directions for his retreat,—either by way of Bordeaux toward the interior of France, or by way of Toulouse parallel to the frontier formed by the Pyrenees.* In the same way, when Frederick retired from Moravia, he marched towards Bohemia instead of returning to Silesia. These parallel retreats are often to be preferred, for the reason that they divert the enemy from a march upon the capital of the state and the centre of its power. The propriety of giving such a direction to a retreat must be determined by the configuration of the frontiers, the positions of the fortresses, the greater or less space the army may have for its marches, and the facilities for recovering its direct communications with the central portions of the state. Spain is admirably suited for the use of this system. If a French army penetrates by way of Bayonne, the Spaniards may base themselves upon Pampeluna and Saragossa, or upon Leon and the Asturias; and in either case the French cannot move directly to Madrid, because their line of operations would be at the mercy of their adversary. The frontier of the Turkish empire on the Danube presents the same advantages, if the Turks knew how to profit by them.[1]

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* Soult directed his line on Toulouse, in order to keep off the English army from the centre of France. F.J.S.

[1] Jomini, Chap. V., Art. 38.

Decisive strategical point of a State, should be protected from sudden attacks.

9. Flank manœuvres are easy when they can be executed under the shelter of a sufficient number of good fortresses. When this is not the case, it is better to retire in a direct line, as each lateral movement entails the necessity of a detachment on the capital. Now, as a general rule, it is wrong to break up one's forces in the presence of an enemy superior in numbers. Prince Charles rightly observed, "that this kind of defence on the flanks requires much reflection, profound views, and judgment." Although the Duke of Wellington has not left any written opinion on this important question, nevertheless one cannot doubt that he had at heart the same views as Napoleon and Prince Charles. When, in 1810, he was obliged to cover Lisbon, the object which Marshal Massena had in view in his operations,—he took his position at Busaco, on the road to Coimbra, and retired immediately in a line parallel to the front of the French army. If he had moved on the *flanks* of that army, he would have exposed Lisbon to be carried by a *coup de main*,—the lines of Torres-Vedras not being in a state to defend themselves without the aid of all the Anglo-Portuguese forces. The example and precepts of all the most illustrious generals prove that a lateral retreat does not produce good results, unless the decisive strategical point is completely protected from sudden attacks of the enemy.

Conclusion.—*The army on the defensive has more freedom of action, and a larger field for it, when the main object of the enemy's attack is fortified.*[1]

10. * * There are circumstances, in which it is specially important to retard the enemy's march, to cause him to lose time by forcing him to make dispositions for attack, which suddenly become superfluous, because we withdraw at the moment when the battle seems ready to begin. Then are needed at the same time excellent troops,

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[1] Brialmont, Vol. I.

and great precautions on the part of the commander. It is in an arrangement by echelons, and great precision in the movements, that security is to be found. If the retiring corps be so disproportioned to that which follows it, that it cannot hazard a battle, it may still, with prudence, sustain partial combats without danger. To this end it should prepare its movements beforehand, in such manner that there shall be no embarrassment among the troops, and that their march may always be light and easy. The general will place with his rear guard sufficient artillery, but not too much; it should be well served, well manœuvred, and some of the pieces should be of large calibre.[1]

11. 'The artillery of the rear guard, some of the pieces of large calibre'—divided into two or three parts, placed in echelons, will march with facility, and will prepare successive and instantaneous points of resistance. The enemy is thus forced to halt in order to make his dispositions before attacking, and at the moment these dispositions are completed, the movement is resumed and the rear guard disappears. Then the enemy advances again, but he is kept at a distance by the fire of the artillery, which he soon discovers to be superior to his own; for the pursuing force lengthens out its columns, while the other, by retiring, constantly carries away the field of battle, and draws nearer to its reserves. Hence there is a continual alternation in the respective strength of the troops in contact.[2]

12. Many generals neglect to arrange the manner and times of halts, and great disorder on the march is the consequence, as each brigade or division takes the responsibility of halting whenever the soldiers are a little tired and find it agreeable to bivouac. The larger the army and the more compactly it marches, the more important does it become to arrange well the hours of departures and halts, especially if the army is to move at night. An ill-timed halt of part of a column may cause as much mischief as a route. If the rear guard is closely pressed, the army should halt in order to relieve it by a fresh corps taken from the second mass, which will halt with this object in view. The enemy seeing 80,000 men in battle-order will think it necessary to halt and collect his columns; and then the retreat should commence at night fall, to regain the space which has been lost.[3]

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[1] Marmont. [2] *Ibid.* [3] Jomini, Chap. V., Art. 38.

13. "In Sir John Moore's campaign," said, the Duke of Wellington, "I can see but one error; when he advanced to Sahagun, he should have considered it as a movement of retreat, and sent officers to the rear to mark and prepare the halting places for every brigade; but this opinion I have formed after a long experience of war, and especially of the peculiarities of a Spanish war, which must have been seen to be understood; finally, it is an opinion formed after the event."[1]

14. When an army is driven from a first position, the retreating columns should rally always sufficiently in the rear, to prevent any interruption from the enemy. The greatest disaster that can happen is when the columns are attacked in detail, and before their junction.[2]

15. If the retiring army is of sufficient strength to measure itself with the enemy * * its safety lies still in the manner in which the echelons are placed, and the aim is always the application of the fundamental principle—to be more numerous than the enemy at the moment of combat, on the field of battle. The best disposition in such a conjecture as this:—to retreat with the army very early, leaving a strong rear guard, which should retreat as late as possible without compromising itself; to take position in a defensive place, at such a distance that the enemy can only arrive three hours before sunset. However anxious to fight, he has not time to make his preparatory dispositions, and if he attempts the attack before completing them, he ought to be crushed, for the encamped army has all its forces united, while he necessarily has only a portion of his own. It was thus, that in 1812, the army of Portugal, very inferior to the English army, withdrew while in its sight, from the banks of the Tormes, to go and take position on the Douro, from which the enemy made no attempt to drive it. In 1796, when General Moreau evacuated Bavaria, to retreat upon the Rhine, followed by the Austrian army, he put this theory in practice; pressed too closely, and marching with his forces united, he halted, gave battle, and gained a victory. But if an army in retreat, or even a single rear guard, finds upon its route an impregnable position, which the enemy cannot carry except by turning it at a distance, they should always occupy it during the entire time they can remain without danger; if the enemy manœuvres to cause them to evacuate it, his

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[1] Napier, Vol. I.

[2] Napoleon.

operations are delayed, and time is everything for the defensive. If the enemy, in his impatience and ardour, attacking suddenly, rushes upon material obstacles, an easy victory will be gained, and one sometimes very destructive to the enemy, and susceptible of considerably changing the *morale* of the two armies. This is what happened in Portugal, on the 27th September, 1810. The English army, inferior to the French, took post on the 26th, upon the mountain of Busaco, counterfort of the Sierra of Acoba. The right of the position which was impregnable barred the road, while the left, connected with higher mountains, was of easy access. Massena, whom the Emperor had recommended to profit by his superiority to force the enemy to accept battle, resolved upon an immediate attack, and, unfortunately, without having sufficiently reconnoitred the position occupied by the enemy along his entire front.[1] * *

16. Fifty pieces of cannon planted on points most favourable for their action, commanded every approach to the position at Busaco. * * Massena prepared to attack that frowning ridge with 56,000 infantry, 8,000 cavalry, and 80 guns. Two columns, each consisting of a *corps d'armée*, were to advance against it; one from behind the convent of St. Antonio along the Viseu-road, the other through a valley separated from the Viseu-road by an inaccessible ridge. The third corps was placed in reserve, and the cavalry concealed itself, as much as possible in order to take advantage of any contingency that might arise. This order of battle was open to one grave objection; the columns of attack could not support each other. But perhaps a heavier charge against Massena was this, that he permitted the whole of the 26th to pass without ascertaining whether it might not be possible to turn a position, a direct assault on which could not be attempted without great sacrifice of life. * * * *

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The effects of the English successes at the Douro, and at Talavera, seemed to culminate in the victory of Busaco; and Massena, who never from the first appears to have counted on an easy triumph, lost heart altogether.

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[1] Marmont.

Suspecting from the lie of the country, that there must be some road, by which the left of the English position could be turned, he sent out, after night fall, General Montbrun with some cavalry to reconnoitre; and these having reported next morning that such a road existed, he availed himself with his usual ability of the advantages which it offered. His tirailleurs swarmed around the bases of the Busaco hills, a battery or two were pushed forward, and every disposition made as if for a renewal of the struggle. But in the night of the 28th, the whole army filed off to its right, and when morning dawned nothing could be seen on the ground which it had occupied, except smouldering fires, and the wrecks of the battle of the 27th.[1]

17. It is generally sufficient if the rear guard keep the enemy at the distance of half a day's march from the main body. The rear guard would run great risk of being itself cut off, if farther distant. When, however, there are defiles in its rear which are held by friends, it may increase the sphere of its operations and remain a full day's march to the rear; for a defile, when held, facilitates a retreat in the same degree that it renders it more difficult if in the power of the enemy. If the army is very numerous and the rear guard proportionately large, it may remain a day's march in rear. This will depend, however, upon its strength, the nature of the country, and the character and strength of the pursuing force. If the enemy presses up closely, it is of importance not to permit him to do so with impunity, especially if the retreat is made in good order. In such a case it is a good plan to halt from time to time and fall unexpectedly upon the enemy's advanced guard, as the Archduke Charles did in 1796 at Neresheim, Moreau at Biberach, and Kleber at Ukerath. Such a manœuvre almost always succeeds, on account of the surprise occasioned by an unexpected offensive return upon a body of troops which is thinking of little else than collecting trophies and spoils.[2]

18. Particular care and a judicious arrangement in being able to replace material and ammunition from the waggons, require to be considered, as the supplies must of necessity be in front and liable to become more distant, should the retreat continue and the rear guard be detained checking the pursuit.[3]

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[1] Gleig. [2] Jomini, Chap. V., Art. 38. [3] Taubert.

19. Marshal Saxe remarks, that no retreats are so favourable as those which are made before a languid and unenterprising enemy, for when he pursues with vigour, the retreat soon degenerates into a route. Upon this principle it is a great error, says the Marshal, to adhere to the proverb which recommends us to build a bridge of gold for a retreating enemy. No! follow him up with spirit, and he is destroyed.[1]

20. Night marches are seldom happy; that from Lugo to Betanzos cost the army—'Sir John Moore's'—in stragglers more than double the number of men lost in all the preceding operations; nevertheless, the reserve in that, as in all the other movements, suffered little; and it is a fact, that the light brigades detached by the Vigo-road, which were not pursued, made no forced marches, slept under cover and were well supplied, left in proportion to their strength, as many men behind, as any other part of the army; thus accumulating proof upon proof that inexperience was the primary and principal cause of the disorders which attended the retreat. Those disorders were sufficiently great, but many circumstances contributed to produce an appearance of suffering and disorganization which was not real.[2]

When the line of retreat is intercepted by a stream.

21. If the stream is narrow and there are permanent bridges over it, the operation is nothing more, than the passage of a defile; but when the river is wide and is to be crossed upon a temporary military bridge, it is a manœuvre of extreme delicacy. Among the precautions to be taken, a very important one is to get the parks well advanced, so that they may be out of the way of the army: for this purpose it is well for the army to halt a half-day's march from the river. The rear guard should also keep at more than the usual distance from the main body,—as far in fact, as the locality and the respective forces opposed will permit. The army may thus file across the bridge without being too much hurried. The march of the rear guard should be so arranged that it shall have reached a position in front of the bridge just as the

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[1] Sir G. C. D'Aguilar. [2] Napier.

last of the main body has passed. This will be a suitable moment for relieving the rear guard by fresh troops strongly posted. The rear guard will pass through the intervals of the fresh troops in position and will cross the river.

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The new rear guard will hold its position until night, and will then cross the river, breaking the bridges after it. It is, of course, understood, that as fast as the troops pass they form on the opposite bank and plant batteries, so as to protect the corps left to hold the enemy in check.[1]

22. * * * * Moore stopped behind the Esla river to check the enemy, to restore order, and to enable his commissariat to remove the stores; Wellington stopped behind the Carrion for exactly the same purposes. The one general was immediately turned on his left, because the bridge of Mamilla was abandoned unbroken to Franceschi; the other general was also turned on his left, because the bridge of Palencia was abandoned unbroken to Foy.[2]

'Wellington,' pursued by a superior army, and seeing his cavalry defeated, turned as a savage lion at the Carrion, nor would he have removed so quickly from that lair, if the bridges at Palencia and Baños had been destroyed according to his order.[3] * *

23. * * * Moore with young soldiers was at first opposed to four times, and latterly to three times its own numbers, for it is remarkable that the French army assembled at Astorga was above 80,000, including 10,000 cavalry which is nearly the same as the number assembled against Wellington on the Tormes; but Moore had little more than 20,000 to oppose to this overwhelming mass, and Wellington had nearly 70,000. The Partidas abounded at the time of Wellington's retreat, they were unknown at the time of Moore's retreat; and this General was confronted by Napoleon, who, despotic in command, was also unrivalled in skill, in genius, and in vigour. Wellington's army was not pressed by the enemy, and he made short marches, yet he lost more stragglers than Moore, who was vigorously pressed, made long marches, and could only secure an embarkation by delivering a battle, in which he died most honourably. His character

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[1] Jomini, Chap. V., Art. 38.

[2] Napier, Vol. V.

[3] *Ibid.*

was immediately villified. Wellington was relieved from his pursuers by the operation of a famine, and had therefore no occasion to deliver a battle, but he was also villified at the time with equal justice; and if he had then died, it would have been with equal malice.[1]

24. It is a good plan to give the command of the rear guard to an officer of great coolness, and to attach to it staff officers who may, in advance of its movements, examine and select points suitable for occupation to hold the enemy temporarily in check. Cavalry can rally so rapidly on the main body, that it is evidently desirable to have considerable bodies of such troops, as they greatly facilitate the execution of a slow and methodical retreat, and furnish the means of thoroughly examining the road itself and the neighbourhood, so as to prevent an unexpected onset of the enemy upon the flanks of the retreating columns.[2]

25. A reserve of cavalry is always indispensable, for the purpose of covering a retreat, without it every defeat would be irretrievable. This reserve will sometimes be obliged to sacrifice itself, like the Austrian Cuirassiers at Ratisbonne in 1809, and the Cuirassiers and Chasseurs of Generals Espagne and Lassalle, at Essling. Intimately associated with the cavalry reserves, the artillery should carry out the following idea of Decker:—"The artillery of the rear guard ought not to think so much of its own preservation as of that of the army, and should be resolved to sacrifice itself for the general safety." It is remarkable that those retreats which are most famous for their tactical combinations, could not have been brought to a successful termination, particularly in an enemy's country, without the aid of a powerful and well-handled cavalry.[3]

26. The protection afforded by artillery in retreat is very powerful, as it keeps the enemy constantly at a distance. A fine example of the use of it for this purpose occurred just before the battle of Pea Ridge, in March, 1862. A rear guard of 600 men, under General Sigel, was retreating before a force of four regiments of infantry and cavalry, that

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[1] Napier, Vol. V.   [2] Jomini, Chap. V., Art. 38.   [3] Ambert.

followed and attacked it on every side. Sigel disposed his guns in echelons, the one of which nearest the enemy played on his attacking squadrons with grape and shell, which suddenly checked them. Instantly profiting by their temporary hesitation, the echelon limbered up and galloped away to another position, while the next echelon, again checking the enemy by its fire, followed its example. By this means, Sigel, cutting his way through a vastly superior force, succeeded, after a retreat of ten miles, in rejoining the main body with trifling loss.[1]

27. Artillery is always of the greatest service in a retreat, because it retards the enemy's march. Lichtenstein's cavalry, 'at Austerlitz,' made good its retreat, protected by forty guns placed in position at the beginning of the action. Bagration retired upon Rausnitz, covered by two batteries of twelve and six guns respectively, placed upon his right and left. The fifty guns of Doctorow stopped for a time the charges of Boyer's division, and the forward movement of the French columns. A single light battery of six guns in position, on a hill above the pond at Tellnitz, caused two squadrons of Chasseurs of the guard, sent in pursuit of the Allies, to pause.[2]

Retreat of the Austrian army, after the battle of Königgrätz, in 1866.

28. Most of the guns, which had been placed in batteries were taken, but those which acted as field artillery, admirably handled, were quickly withdrawn, and were already fast forming on a farther ridge by Rosnitz to cover the retreat of the infantry. The Prussians paused but a few moments among the taken guns, and then rushed on in pursuit. The summit of the ridge was quickly gained, and there before them they saw the whole hollow ground between them and Rosnitz filled with running white uniforms. The victorious battalions commenced a rapid fire upon them, and men dropped quickly from the flying ranks, rolling over and over as they fell on the sloping ground. The sixth corps, which the Crown Prince, had directed more against the Austrian rear, caught the fugitives in flank, and raked the running ranks with their

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[1] Lippitt.

[2] Ambert.

fire. The Prussian artillery was also quickly up, unlimbered, and came into action on the summit of the ridge, and sent its shells bursting with an horrible precision among the heads of the flying soldiers. And yet the Austrians kept their formation, and never let their retreat become a route. Such a retreat under such circumstances is as creditable to the valour of the Austrian soldiers, as a battle won. The Prussian cavalry, unable to leave the road till it got nearly the top of the hill, on account of the woods by the side of the way, was not up till the Austrian infantry had got half way across the hollow which separates Chlum from the further ridge of Rosnitz, and there the Austrian batteries had taken up their position, and began to play upon the pursuing troops. Then, for a few minutes, Prince Frederick Charles, who was leading the hussars and dragoons, had to leave them to make his general dispositions for attacking the new position taken up by the Austrian artillery, and the cavalry immediately got out of hand. By single squadrons, by single troops, and even only in knots of a few horsemen, they rushed with wild impetuosity at different points of the retreating infantry; but the Austrian guns sent shells rapidly among them, and the infantry, though running, still kept its formation, and turned, when they came too close, to stand and deliver volleys which emptied many a saddle. Nor were the Austrian cavalry off the field, though they could not face the tremendous fire of the Prussians to charge and cover the retreat of their infantry; but when attacked by the enemy's cavalry, and when thus the guns could not fire upon them, they fought hard, and sacrificed themselves to cover the retreat.[1] * * *

29. But the Austrian artillery was not long able to hold its new position; the fire of the Prussian guns and the dispositions which were being made to attack it, compelled it to retire. It then drew off slowly, but on every successive ridge came into action, and fired against the pursuers to check them, and gain for its own infantry time for retreat. Some Prussian horse artillery and cavalry followed it, and till after nightfall the pursuit went thundering towards the Elbe, and drew the fire of the heavy guns of the fortress. The Austrian cavalry retired to Pardubitz, and the remainder of the army by seven or eight bridges, thrown across the river between that place and Koniggratz, got beyond the stream by night without severe loss.[2] * * * *

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[1] Hosier, Vol. I. [2] *Ibid.*

30. The Prussian pursuit was tardy, and not pushed. The men were fatigued, and night was coming on. The Austrian cavalry was moving sullenly towards Pardubitz. The Prussian cavalry of the first Army had suffered severely. The Elbe lay between the retreating Austrians and the victorious Prussians. The victory, although fortuitously decisive, was not improved to such advantage as it ought to have been.[1]

Retreat of the Allies, after the battle of Bautzen, in 1813.

31. The Allies, 'Russia and Prussia,' were not in a condition to assume the offensive against an enemy who had an advantage in numbers of nearly two to one, and whose principal columns were now concentrated towards a focus, and brought to bear simultaneously on the corps of General Blucher in his salient and exposed position, with six hours of daylight still remaining. A retreat in good order was evidently the most favourable result the allied army could expect. To prolong the affair would only have occasionally increased loss on both sides in killed and wounded, which the enemy could afford better than the Allies; and enough had been done to show the determination of the allied sovereigns remained unchanged, to persevere in the great struggle in which they were engaged. These considerations induced the Emperor Alexander and the King of Prussia, at about three in the afternoon, very reluctantly to sanction the order for a general retreat, with an army neither disheartened or disorganized, but, though somewhat diminished in numbers, still prepared to dispute another position with equal resolution. * * * * * * As this probable result had been anticipated, all dispositions for the general retreat of the army had been duly prepared, and the ground for the night fixed for each corps and division. All the rear guard posts that were capable of being disputed, had been well considered; and good discipline and a superiority in cavalry, through a country generally favourable to that arm, secured a safe and orderly retreat, which was made in two columns, the left wing, by Hochkirch, on Lobau, and the right, by Weissenberg,

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[1] Hozier, Vol. I.

on Reichenbach. * * * * * * * * 'Blucher' had united several batteries of light artillery, which were supported by all his cavalry, including the Prussian cavalry of reserve, and so effectually kept the enemy at bay, that Ney was obliged to have recourse to a similar disposition, and assembled a battery of sixty guns to oppose him. The Prussian infantry retreated, in the mean while, in perfect order, molested only by a distant cannonade. To check the rapid advance of the French in his rear, and to collect his own forces, General Blucher made a stand on the commanding ground near Belgern, and then moved off, by Weissenberg, on Reichenbach, according to the route assigned to the right column. Barclay de Tolly retired in the same direction, and Kleist was left, with a large proportion of cavalry and light artillery, to form the rear guard and cover the retreat. * *

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The routes of the two retiring columns of the allied army converged on Reichenbach, and the commanding ground in rear of that defile, was occupied by the Allies with purpose of resistance, and therefore more in force than an ordinary rear guard post.[1]

Soult's retreat on Toulouse.

32. At the close of the combat of Tarbes, the situation of the retreating troops seemed desperate, but as Soult had foreseen, the deep ditches and enclosures and the small copses, villages, and farm houses—"on the plain of Tarbes where Clauzel was posted, two or three miles in front of the heights of Oleac, on which the French army was in line of battle on the morning of the 20th"—prevented the British cavalry from acting; Clauzel therefore extricating his troops with great ability from their dangerous situation, finally gained the main position, where four fresh divisions were drawn up in order of battle and immediately opened all their batteries on the Allies. The pursuit was thus checked, and before Lord Wellington could make arrangements for a new attack darkness came on and the army halted on the banks of the Larret and Larros rivers. * * * * * * * * * *

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[1] Cathcart.

During the night, Soult retreated in two columns, one by the main road, the other on the left of it, guided by fires lighted on different hills, as points of direction. The next day he reached St. Gaudens with D'Erlon's and Reille's corps, while Clauzel, who had retreated across the fields, halted at Monrejean and was there rejoined by Pierre Soult's cavalry. This march of more than thirty miles was made with a view to gain Toulouse in the most rapid manner.[1]

Retreat of the English army, under Sir John Moore, on Corunna.

33. The Duke of Dalmatia, a general, who, if the Emperor be excepted, was no wise inferior to any of his nation, commenced his pursuit of the English army with a vigour that marked his eager desire to finish the campaign in a manner suitable to the brilliant opening at Gamonal. The main body of his troops followed the route of Foncevadon and Ponteferrada, a second column took the road of Cambarros and Bembibre, and General Franceschi, with the light cavalry, entering the valley of the Syl, ascended the course of that river, and turned the position of Villa Franca del Bierzo. Thus, Sir John Moore, after having twice baffled the Emperor's combinations, was still pressed in his retreat with a fury that seemed to increase every moment. The separation of his light brigades, a measure which he adopted, after the advice of his Quarter-Master-General, weakened the army by 3000 men; but he still possessed 19,000 men of all arms, good soldiers to fight, and strong to march, yet by the disorders at Valderas and Astorga, much shaken in their discipline; for the general's exertions to restore order and regularity were by many officers slightly seconded, and by some with scandalous levity disregarded. There was no choice but to retreat. The astonishing rapidity with which the Emperor had brought up his overwhelming numbers, and thrust the English army into Gallicia, had rendered the natural strength of the country unavailing.[2] * * * * * * *

34. Before he advanced from Salamanca, Sir John Moore, foreseeing that his movement must sooner or later end in a retreat, had sent

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[1] Napier, Vol. VI. [2] *Ibid.*, Vol. I.

officers to examine the roads of Gallicia and the harbours which offered the greatest advantages for embarkation. By the reports of those officers, which arrived from day to day, and by the state of the magazines he had directed to be formed, his measures were constantly regulated. The magazines of Astorga, Benevente, and Labanenza, were, by untoward circumstances, and the deficiency of transport, rendered of no avail beyond the momentary supply they afforded; and part of their contents falling into the enemy's hands, gave him some cause of triumph; but those at Villa Franca and Lugo contained about fourteen days' consumption; and there were other small magazines formed on the line of Orenze and Vigo; more than this could not have been accomplished. It was now only the fifteenth day since Sir John Moore had left Salamanca, and already the torrent of war, diverted from the south, was foaming among the rocks of Gallicia. 19,000 British troops, posted in strong ground, might have offered battle to very superior numbers; but where was the use of merely fighting an enemy who had 300,000 men in Spain? Nothing could be gained by such a display of courage; but the English general by a quick retreat might reach his ships unmolested, embark, and carrying his army from the narrow corner in which it was cooped, to the southern provinces, establish there a good base of operations, and renew the war under favourable circumstances.[1]

35. At Corunna, the absence of the fleet necessarily brought on a battle; that it was honourable to the British troops is clear from the fact that they embarked without loss after the action; and that it was absolutely necessary to embark notwithstanding the success, is as certain a proof how little advantage could have been derived from any battle fought farther inland, and how prudently Sir John Moore acted in declining an action the moment he had rallied his army at Lugo, and restored that discipline which the previous movements had shaken.[2]

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Soult's retreat, after the battle of Albuera.

36. On the 18th, two days after the battle of Albuera, the French under Soult retreated. He left to the generosity of the English general

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[1] Napier, Vol. I.

[2] *Ibid.*

several hundred men too deeply wounded to be removed: but all that could travel, he had, in the night of the 17th, sent towards Seville, by the royal road, through Santa Marta, Los Santos, and Monasterio: then, protecting his movements with all his horsemen and six battalions of infantry, he filed the army, in the morning, to its right, and gained the road of Solano. When this flank march was completed, Latour Maubourg covered the rear with the heavy dragoons, and Briché protected the march of the wounded men by the royal road.[1]

37. On the 16th, when Soult had regained the hills at the other side of the Albuera, the battle ceased, each side being so hardly handled, that neither offered to renew the fight. Here was the greatest failure of the French commander; he had lost 8000 men, but he had still 15,000 under arms, and his artillery and his cavalry were comparatively untouched. On the side of the Allies, only 1500 British infantry were standing; the troops were suffering greatly from famine; the Spaniards had been feeding on horse flesh, and were so extenuated by continual fatigue and misery, that, for several days previous to the battle, they had gone over in considerable numbers even to the French, hoping thus to get food: these circumstances should be borne in mind, when reflecting on their conduct in the battle; under such a commander as Blake, and, while enduring such heavy privations, it was a great effort of resolution, and honourable to them that they fought at all. Their resistance feeble, when compared to the desperate valour of the British, was by no means weak in itself or infirm; nor is it to be wondered at that men so exhausted and so ill-managed should have been deaf to the call of Beresford, a strange general, whose exhortations they probably did not understand. When the fortune of the day changed they followed the fusileers with alacrity, and at no period did they give way with dishonour. Nevertheless, all circumstances considered, they were not and could not be equal to a second desperate struggle, a renewed attack on the 17th, would have certainly ended in favour of the French; and so conscious was Beresford of this, that, on the evening of the 16th, he wrote to Lord Wellington, avowing that he anticipated a certain and ruinous defeat the next day. The resolution with which he maintained the position, notwithstanding, was the strongest indication of military talent he gave during the whole of his operations;

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[1] Napier, Vol. III.

had Soult only persisted in holding his position with equal pertinacity, Beresford must have retired. It was a great and decided mistake of the French marshal not to have done so. There is nothing more essential in war than a confident front; a general should never acknowledge himself vanquished, for the front line of an army always looks formidable, and the adversary can seldom see the real state of what is behind.[1] * * * * * * *

Retreat of the Prussian army on Wavre.

38. Gneisenau coming into temporary command after the fall of Blucher at the end of the battle of Ligny, and finding the struggle for the present hopelessly decided, chose at all risk of inconvenience to abstain from the notion of a retreat to the east, and to keep as near as might be to the English army. Without any direct communication with Wellington (as far as can be positively ascertained), he put his army in motion northward for Wavre at the earliest daybreak. * * * The order of the Prussian retreat, was simple enough, and was neither molested nor even noticed by the French, as Napoleon's own words show. Zieten left the vicinity of the Ligny plateau at daybreak, and by field tracks made his way due northward through the villages of Tilly, Gentinnes, and Mount St. Guibert to Wavre, where he crossed the Dyle to the further side of the town. A little later Pirch followed him, halting, however on the south side of Wavre, and leaving detachments to cover their rear. Thielemann, who had the reserve parks of the army in charge, moved separately and more slowly, going through Gembloux (which he only quitted at two p.m.), and reaching Wavre so late that he could not carry his whole corps through the town that night to the north bank of the Dyle, as had been intended. Bulow made a march (in accordance with distinct instructions received that morning) by the villages of Walhain and Corbaix to that of Dion-le-mont, three miles S. W. of Wavre, where he took up a position with strong rear guards thrown out to cover from any pursuit of the French the army thus happily concentrated, and so relieved those of General Pirch.[2]

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[1] Napier, Vol. III.

[2] Chesney, Lect. V.

Retreat of the English army from Quatre Bras on Waterloo.

39. Wellington's orders written at Genappe, where he slept, sufficiently show him quite unconscious of the Prussian intentions, and anxious to complete the concentration at Quatre Bras; but he rode early back to the scene of the action of the 16th, and soon learnt the truth. An aide-de-camp with an escort communicated early with General Zieten, and heard what Gneisenau had ordered; and before the English troops had cooked their breakfast an officer from Blucher's own head-quarters, already moved to Wavre, brought messages from the Marshal. A retreat was of course essential in Wellington's exposed position; but the line taken by the Prussians, and the failure (which Wellington observed) of the French to pursue, spoke so plainly of a prospect of cordial co-operation leading to victory, that the Duke at once announced his intention of pausing in his movement on Brussels, to accept battle in the position of Waterloo (reconnoitred and reported on for him the year before), provided Blucher would help him with part of his army. Covered by Alten's division (of the Prince of Orange's corps), and the cavalry, the retreat of the English main body was begun in excellent order, and continued throughout the day until completed. Lord Hill led direct to Waterloo the troops from Nivelles, Chassé's and Clinton's divisions and part of Colville's. The rest of Colville's and Frederick's Dutch-Belgians moved by a third road from Enghien on Hal, a town ten miles westward of Waterloo, where they were ordered to halt, to cover Brussels on that side. With the exception of this detachment, and a single brigade marching up from Ghent to arrive at daylight, the whole fighting army of Wellington lay that night upon the ground which the next day was to make the most famous battle-field in the world. Their left was but seven miles distant, in a straight line, from the right of their Allies at Bierge, near Wavre; and their chief, in reply to his demand for aid, had received from Blucher, now fully recovered, the characteristic reply, 'he would march with his whole army to join him, and if the French delayed to attack, the Allies would give them battle on the 19th.'[1]

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[1] Chesney, Lect. V.

40. That Wellington did not begin to move his troops off until about ten a.m., is a point proved by the united testimony of independent witnesses. Until that hour, therefore, he stood facing Ney with the force victorious the night before, and now reinforced largely. • •

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Wellington was left exposed in an apparently isolated position on the morning of the 17th, for the want of information as to their doings from Blucher's staff. Müffling admits that the Duke for a moment thought himself deceived, when he at last heard from Zieten of the retreat begun many hours before.[1]

41. There was no incident of importance in the advance in pursuit of the English, save one sharp skirmish at Genappe, where Lord Uxbridge had to turn and drive back with his household brigade of heavy cavalry some lancers who pressed the seventh Hussars, Wellington's extreme rear, with some vivacity. This repulse, or (according to some accounts) the rain which fell in torrents all the evening, saved the English army further interruption until the French reached at dusk the heights of Belle Alliance, opposite Wellington's chosen position. A deployment of Milhaud's cavalry, which Napoleon here ordered, soon produced such a fire of artillery as convinced him that his enemy was not retiring, as he had feared, through the forest of Soignies under cover of the coming night. The French were halted, therefore, as they came up, and placed in bivouac to await the events of that morrow from which their chief hoped so much, but which was in truth to leave the Emperor and Grand Army nothing but the fame of the past glories they had shared.[2]

42. Wellington's movement from Quatre Bras, the perfect way in which his strong cavalry and a single division of infantry masked the retreat of the rest, and the complete order in which he carried off so large and miscellaneous a force from before the face of the most renowned general of the world handling superior numbers, * * attracted deserved admiration at the time from foreign observers, though its details must be studied in the work of his friendly English critic, Kennedy, who was employed in conducting it, to understand their perfection.[3]

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[1] Chesney. Lect. V.

[2] *Ibid.*

[3] *Ibid.*

43. Kennedy records, that, 'The 3rd division was severely engaged on the 16th,—and was in a position of great delicacy to be withdrawn from on the 17th, as it occupied Piermont and part of the great road towards Brye, and consequently became exposed to the advance of the army under Buonaparte from the field of Ligny. 'Sir J. Shaw Kennedy' was ordered to reconnoitre the country from the position of the division near Piermont, to the Dyle, and to fix upon its line of retreat, and upon the point at which it should pass the Dyle, so as to leave the passage at Genappe free for the other portions of the army. The division retired upon the line as fixed upon in this reconnaissance. Marching by Bezy, it passed the Dyle by the bridge of Wais-le-Hutte, and, by a cross-march, joined the great road leading from Genappe to Waterloo. This operation was a very delicate one,—that of withdrawing 6000 men from before so great a force, in open day, under Napoleon, with which force they were in actual contact, and having during their retreat to cross a considerable river. The operation was, however, perfectly successful. Every possible precaution was taken to withdraw a great portion of the division before the enemy perceived that it was moving in retreat, and the three brigades were so arranged that they kept in echelons on the line of retreat, each brigade forming on ground favourable for repelling an attack, and so that each brigade should retire in succession; thus, the enemy constantly found, as he advanced, brigade after brigade regularly formed for action. Although the enemy closely followed the division, he never attempted any regular attack upon it. After having joined the great Genappe road, the division proceeded directly along that road, to the field of battle of Waterloo.'[1]

Retreat of Grouchy to France.

44. Retreat in the Charleroi direction being closed, that through the mass of the Ardennes seemed to present itself as the best means of escaping the allied pursuit: but the French had no supplies which could maintain them in a country where subsistence was not to be picked up by the way. There remained but one hope. The fortress of

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[1] Kennedy.

Namur had been abandoned by the Prussians in their haste to concentrate on Ligny, and they had by their subsequent march northward left it uncovered. Could Grouchy once regain Sombreffe before the Prussians seized that point, he would have a clear passage along the great chaussée which led from Nivelles into the place, with an equally good one beyond it up the Meuse by which to escape; and his rear, covered by the works might file safely into France. Seizing rapidly at this hope, he despatched his chief cavalry officer, General Excelmans, with seven regiments of dragoons to ride at speed on Namur and seize the works. With Gérard's corps the Marshal followed, and by a forced march reached Sombreffe the same evening, leaving Vandamme at Wavre to cover the rear. * * * At five p.m. Vandamme commenced his retreat unmolested, and at midnight took up his bivouac at Gembloux for a few hours rest. His march was observed by the nearest division of the Prussians, that which had returned from St. Lambert to rejoin Thielemann, and by them reported to the latter general, who gave orders to pursue at daylight. On the 20th the French continued their retreat in two columns. Vandamme, quitting Gembloux at seven a.m., after a somewhat unnecessary delay, marched across country on Namur by a direct bye-road. Grouchy, waiting probably till he knew his lieutenant to be on his way, moved from Sombreffe along the high road about the same hour. Both were attacked before they reached the fortress, the Marshal himself being overtaken a short distance from the fortress by the advance guard of Pirch, which had left Mellery soon after five a.m., on learning that the enemy were moving on Namur. The same caution which had kept that general motionless all the day before when within two hours' march of the road traversed by the retreating French, seems to have hampered him still. His troops did not succeed in engaging the enemy's rear guard until four p.m., about which hour Thielemann's cavalry, having passed through Gembloux, overtook the tail of Vandamme's column, but having no infantry with them, were unable to make any serious impression upon it. At six p.m., the whole of the French had passed within the works of Namur, with little loss but that of two or three light guns. Indignant possibly at the result of his own slowness, Pirch directed an immediate assault upon the walls, in hopes of carrying the place before the enemy abandoned it: but Vandamme, entrusted by

Grouchy with the duty of covering with his own corps and Teste's division the retreat of the army, defended the walls too vigorously for such a rash attack to succeed; and after losing over 1600 men, the Prussians desisted from an attempt which it is hard (according to their great national writer) to justify under the circumstances. After this they pressed no more on Grouchy, who made his way unmolested up the Meuse to Dinant, and thence by Givet into the heart of France, having accomplished, with a very trifling loss, one of the most surprising escapes from a very critical position which modern history records. It was not until the 21st that his troops once more drew regular rations; nor did he receive any instructions for his guidance till the 23rd, when orders from Soult directed him to continue his march on Soissons.[1]

45. Pursuits should be conducted upon the same principles as strategical lines and battles, always aiming at the communications of the flying enemy; but in this case more than any, no relaxation should be allowed; no time for the reorganization of his broken corps, or for preparing means to retard the pursuer. If his communications can be turned, it may be expected that the whole matériel of his army will be captured. The pursuer should disregard having his most advanced troops checked or even repulsed; he may be sure the enemy cannot continue to hold his ground, and therefore should attack him again and again, till he obtains his object: if he can drive the fugitives to the shores of the sea, a great lake, or deep river, he may compel them to surrender; therefore no battle gained should be without a pursuit to the utmost, provided no unanswerable objection be opposed to it.[2]

46. When an army retreats, whatever may be the motive of the operation, a pursuit always follows. A retreat, even when executed in the most skilful manner and by an army in good condition, always gives an advantage to the pursuing army; and this is particularly the case after a defeat, and when the source of supplies and reinforcements is at a great distance; for a retreat then becomes more difficult than any other operation in war, and its difficulties increase in proportion to the skill exhibited by the enemy in conducting the pursuit.

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[1] Chesney, Lect. VII.

[2] (Aide Mémoire) C.H.S.

(1) It is generally better to direct the pursuit upon the flank of the retreating columns, especially when it is made in one's own country and where no danger is incurred in moving perpendicularly or diagonally upon the enemy's line of operations. Care must, however, be taken not to make too large a circuit; for there might then be danger of losing the retreating enemy entirely.

(2) A pursuit should generally be as boldly and actively executed as possible, especially when it is subsequent to a battle gained; because the demoralized army may be wholly dispersed if vigorously followed up.[1]

47. In pursuit, the great aim should be to strike not the rear, but the flank of the retreating enemy. And as infantry that preserves its array can scarcely overtake troops flying in disorder, cavalry and horse artillery are specially adapted for making circuits by which to cut in on the line of retreat. Cavalry pressing on the rear should not stop to attack firm infantry, but pass on, and increase the confusion of troops and abandonment of material.[2]

48. If any such parallel road exist which joins that by which your army is retreating at a point farther on, it must push on to that point by marches forced to the utmost limit of the endurance of the troops: there is no rest nor safety for it until it reach that point. But as a further precaution, the junction of the two roads should be intrenched beforehand, and a picked force of the three arms sent forward to hold it. It will be a race between you and the enemy to reach that point first: and, if he gain, the consequences are certain to be very disastrous. By employing judiciously his physical advantages. * * the general in command of a retreating force has much in his power. For instance, if a favourable position occurs on the line of his intended day's march—a position of which, of course, the circumstances are previously known to him—he may time his morning start from the last night's halting-place, so as to arrive there three or four hours before sunset. Whatever may be the enemy's impatience, he dare not attack this new position until his army is formed methodically and his dispositions are completed. Under the most favourable circumstances this would occupy so much time, that sufficient daylight would not remain to commence

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[1] Jomini, Chap. V., Art. 38.

[2] Hamley, Part VI., Chap IV.

a battle with any hope of bringing it to a successful issue l dark.[1]

49. In a skilful pursuit, artillery can play an important pa successively taking up good positions, from which it can crusl enemy's columns, and change retreat into a route.[2]

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[1] MacDougall. [2] Ambert.

PART V.

MINOR OPERATIONS AND MISCELLANEOUS.

CHAPTER I.

SECTION I.

MOUNTAIN WARFARE.

1. In a mountainous country, small, well-located forts are equal in value to fortified places, because their province is to close the passes, and not to afford refuge to armies; the little fort of Bard, in the valley of Aosta, almost arrested Napoleon's army in 1800.[1]

2. Forts constructed upon mountains and rocks, are sometimes so elevated that the approach of the enemy is scarcely affected, on account of the very depressed angle at which it is necessary to fire the guns. Such posts are often unprovided with water, especially when they depend for a supply upon wells which dry up in summer; this reduces the garrison to the water in the tanks, which soon becomes bad, and forces it to capitulate.[2]

3. Boroughs, villages, hamlets, and isolated houses, situated at the foot of heights or in hollows, are seldom capable of being turned into posts: but when circumstances require that they should be occupied, it is necessary to remedy whatever defects they possess, by means of intrenchments.[3]

4. It has long been a question whether possession of the mountains gave control of the valleys, or whether possession of the valleys gave control of the mountains. The Archduke Charles, a very intelligent and competent judge, has declared for the latter, and has demonstrated that the valley of the Danube is the key of Southern Germany. However,

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[1] Jomini, Chap. III., Art. 26. [2] Jervis. [3] *Ibid.*

in this kind of questions much depends upon the relative force and their arrangement in the country. * * *

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The important natural strategic points will be at the junction of the larger valleys, or of the streams in those valleys, and will be few in number; and, if the defensive army occupy them with the mass of its forces, the invader will generally be compelled to resort to direct attacks to dislodge it.[1]

5. The valleys, almost alone, offer means of communication. The junction of the valleys in the mountains, is what the junction of roads is in the plains. However, in the Saxon Erzgebirge, the roads are on the summit. The establishment of communications in the mountains must, therefore, be scrupulously attended to; because all success, in the direction of war, depends on that principle.

The Archduke Charles says, on keeping open the roads:—'It is in the valleys that we find the roads necessary for the transport of troops, and their provisions. It is necessary to keep the valleys, to be master of the mountains, because they command the valleys. That the occupation of high mountains for regular armies ought not to be of long duration, as the conveyance of necessary stores for any length of time, is impossible.'[2]

6. Valleys require a very careful survey. The chief points to be enquired into are, the population, extent, woods, cultivation, intersection by rivers, streams, or ravines; whether they produce grain or forage; whether troops can march through them easily and with safety; whether the mountains or heights, which form these valleys, are at such a distance that the columns advancing through them would not be inconvenienced by the fire of the enemy posted on their heights; and especially, whether this enemy could shut up the troops which had so advanced. Valleys which are cut longitudinally or transversely by a great number of counterforts, streams, sinuosities, and ravines, are often impracticable for troops, from the number of bridges to be constructed or passages to be opened.[3]

7. When examining in detail a mountainous country, the first points to be considered are those mountains which overlook others, their

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[1] Jomini, Chap. III., Art. 28. [2] Decker. [3] Jervis.

relative position, the means of reaching their summits, and the most important points to be occupied, either generally or otherwise; whether the summits consist of naked rocks; whether they are wooded, either partly or totally; whether they are advantageous positions to occupy, and what object would be fulfilled by doing so. The passes, roads, and paths, which cross the heights, should be examined, as well as the back of the heights, and the valleys; whether the valleys are practicable or not, or only difficult of access; whether artillery, cavalry or only infantry, can pass through them. The debouches and defiles which lead into these valleys should also be carefully sought out, and it should be ascertained whether these debouches or defiles are favourable or otherwise. The nature of the steeps and slopes of the mountains should be reconnoitred, as also the character of the woods (if there are any), of the streams, pastures, towns, boroughs, villages, hamlets, country houses, farms, windmills, and isolated houses; whether they would be of any use in a military point of view; what positions would be advantageous for encamping, &c. Examine whether there is any table land beyond, which would enable an enemy, by taking up his position there, to advance and make himself master of a large extent of country; examine accurately the points by which the enemy might turn the positions or outposts which it is intended to occupy, or by which he might himself be turned; discover whether there are any paths which enable this to be done; for, though mountainous countries present strong positions in almost every direction, yet the greater part are susceptible of being turned. It should be discovered whether heights of middling elevation are practicable, or would be useful if occupied; whether batteries, or posts of observation, might be placed there; the nature of their communications with their rear; whether they are short and easy; whether, once the enemy has got a footing in the mountains, he can cut off your communications; what means there are to secure these, and at what time of the year the several mountain passes are closed up by snow. Mountain roads are often obstructed by snow; it is therefore of importance to know at what season they are closed or open; they may be more or less open at different parts, and sometimes are so steep that they are crossed with difficulty.[1]

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[1] Jervis.

8. Rivers which take their rise in mountains are rapid, and of little depth near their source; their banks are generally edged with heights, prolongations of the one in which the river has its source. These rivers swell with great rapidity, either after much rain or from the melting of the snow: the first in March or April, when the snow first begins to melt, and the second towards the month of July, when that on the highest summits begins to be affected by the great heats. It is important to be correctly informed as to the time of the year when these increases take place, so as to regulate the movements of the troops accordingly. The beds of these rivers are generally good; but the quantity of large stones, with which the fords are encumbered, makes them very inconvenient for horses, and often impracticable for artillery or carriages.[1]

9. Offensive mountain warfare, in a hostile unknown region, is the prosecution of a difficult art under most trying circumstances. All the ordinary obstructions to successful campaigning then present themselves in an aggravated form. Whether in climbing steep ridges, or in forcing rocky defiles, the advantages of ground and the knowledge of locality are entirely in favour of the enemy. They not only hold all the commanding points, but the very habits of their daily life render them peculiarly adapted for irregular fighting. Simple and abstemious in their living, the air and exercise on the mountain-side inure them to hardships, and render them capable of great physical exertion. The well-fed soldiers of the plains, on the other hand, toiling wearily over the unwonted difficulties of the ground, find that the advantages of their regular formations and severe drill are of little avail under conditions so antagonistic to ordinary routine. But the difficulties of moving large and regularly organized bodies of men over a steep and almost pathless country do not end here. The transport required for the carriage of food, ammunition, clothing, medical stores, and the hundred details which go to meet the almost artificial wants of modern armies, render rapid locomotion nearly impossible, and our Indian experience has hitherto been very adverse to lightness of equipment. * *

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An experience of twenty years on the frontier has so far been beneficial, that the Punjaub local regiments, are provided with mule-transport, and are fairly adapted for quick movement, though even with them, baggage is by no means reduced to a minimum.[1]

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[1] Jervis.

10. The offensive against a mountainous country also presents a double case: it may either be directed upon a belt of mountains beyond which are extensive plains, or the whole theatre may be mountainous. In the first case there is little more to be done than this, viz.: make demonstrations upon the whole line of the frontier, in order to lead the enemy to extend his defence, and then force a passage at the point which promises the greatest results. The problem in such a case is to break through a cordon which is strong, less on account of the numbers of the defenders than from their position, and if broken at one point, the whole line is forced. * * * *

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When we consider the *tactical* difficulties of this kind of war, and the immense advantages it affords the defence, we may be inclined to regard the concentration of a considerable force to penetrate by a single valley as an extremely rash manœuvre, and to think that it ought to be divided into as many columns as there are practicable passes. In my opinion this is one of the most dangerous of all illusions; and to confirm what I say, it is only necessary to refer to the fate of the columns of Championnet at the battle of Fossano. If there be five or six roads on the menaced front, they should all, of course, be threatened; but the army should cross the chain in not more than two masses, and the routes which these follow should not be divergent; for if they were, the enemy might be able to defeat them separately. Napoleon's passage of the Saint-Bernard was wisely planned. He formed the bulk of his army on the centre, with a division on each flank by Mont Cenis and the Simplon, to divide the attention of the enemy and flank his march.[2]

Passage of the Alps by Napoleon.

11. "An obstacle, whose importance we had not properly estimated, was near arresting us at the very threshold of our career. The army

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[1] Col. Adye.

[2] Jomini, Chap. III., Art. 38.

descending the valley of the Doria, after routing at Chatillon, a small corps of the enemy, which was too feeble to oppose our march. But on reaching the little fort of Bard, which, situated on an impregnable rock, was garrisoned by only 400 men, we found our passage closed. It refused to surrender at our summons, and resisted all our attempts at an escalade. Lannes, with the infantry, succeeded in effecting a passage by the mountains of Albaredo; but neither horses nor cannon could pass! It was almost maddening to see one's self arrested by a mere handful of men! I caused a new road to be cut through the rocks for my cavalry. My soldiers, like those of Hannibal, debouched by a road cut out with their own hands. But if the Carthaginian general was embarrassed by his elephants, I was no less so by my cannon. Seeing no other means of extricating myself from this dangerous position, I resorted to stratagem. Covering the wheels of the carriages with straw so as to prevent all noise in their movements, we drew them, in the night while the garrison was asleep, through the streets of the Faubourg directly under the guns of the fort! This bold but perilous operation was attended with perfect success, and full of hope, we continued our march on Ivrea. Lannes had already taken this place, and driven the Austrians on Romano. There were only 3000 of the enemy in the valley of Aosta, at the time of our passage, but more than 30,000 were scattered in the valleys of the Ticino and the Po."[1]

12. Among mountains a great number of positions are always to be found very strong in themselves, and which it is dangerous to attack. The character of this mode of warfare consists in occupying camps on the flanks or in the rear of the enemy, leaving him only the alternative of abandoning his position without fighting, to take up another in the rear; or to descend from it in order to attack you. In mountain warfare, the assailant has always the disadvantage. Even in offensive warfare, in the field, the great secret consists in defensive combats, and in obliging the enemy to attack.[2]

13. Wellington 'in the Pyrenees' saved Coimbra, forced the enemy into a narrow, intricate, and ravaged country, and, with an inferior force,

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[1] Life of Napoleon.

[2] Napoleon.

turned him out of every strong position; and this, by a series of movements, based on the soundest principles of war. For, noting the skill and tenacity with which Massena and Ney clung to every league of ground and every ridge defensible, against superior numbers, he seized the higher slopes of the mountains by Picton's flank march on the 13th; and again by Cole's on the 14th; and thus, continually menacing the passes in rear of the French, obliged them to abandon positions which could scarcely have been forced: and this method of turning the strength of the country to profit, is the true key to mountain warfare. He who receives battle in the hills has always the advantage; and he who first seizes the important points chooses his own field of battle.[1]

14. In the military work, entitled "Campagne de 1799, en Allemagne et en Suisse," which is generally supposed to be by the Archduke Charles, the author thus expresses himself:—"The theory of mountain warfare has perhaps never been so clearly and forcibly developed as during the campaign of 1799, where the belligerent armies were disputing for the possession of the elevated countries of Europe. This period, which was particularly celebrated by the course of the operations, gives a new interest to the campaign. Instead of crossing the heights in lines parallel to the original positions, as is usually done in countries of this nature, where it is only requisite to cross the first chain to attack another parallel to this one, or descend in the plain beyond, the army started in the positions which cut perpendicularly the range of mountains, and endeavoured to obtain possession of them by over-running the chain throughout its length, and following the direction of its branches." The events which succeeded these movements, led to the following observations:

(1) That the position of the plains prepares and secures, with reference to strategy, the occupation of the mountains.

(2) That the march of columns of any strength, and, in consequence, that of the line of operations, cannot be made except through the principal valleys.

(3) That a system of passive defence, does not fulfil its object, and that it can only be maintained by attacking the enemy who advances.

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[1] Napier.

(4) That, for an attack to succeed, it should be directed at the same time in the valleys and upon the heights which border them; and that, to decide which of these two directions leads to the real attack, depends upon the nature of the ground and the respective positions."[1]

15. Jomini points out:—"That mountainous countries are particularly favourable for defence when the war is a national one, in which the whole people rise up to defend their homes with the obstinacy which enthusiasm for a holy cause imparts: every advance is then dearly bought. But to be successful it is always necessary that the people be sustained by a disciplined force, more or less numerous: without this they must finally yield, like the heroes of Stanz and of the Tyrol."[2]

16. Napier alluding to the guerilla warfare, carried on in Spain against the invaders, remarks:—"That the guerilla system could never seriously effect the progress of the French, is proved by the fact, that the constant aim of the principal chiefs was to introduce the customs of regular troops; and their success against the enemy was proportionate to their progress in discipline and organization. There were not less than 50,000 of these irregular soldiers, at one time, in Spain; and so severely did they press upon the country that it may be assumed as a truth that if the English army had abandoned the contest, one of the surest means by which the French could have gained the goodwill of the nation would have been the extirpating of the *partidas*. Nevertheless, one great and unquestionable advantage was derived by the regular armies, and especially by the British, from the existence of these bands. The French corps could never communicate with each other, nor combine their movements, except by the slow method of sending officers with strong escorts; whereas, their adversaries could correspond by post, and even by telegraph, an advantage equal to a reinforcement of 30,000 men."[3]

17. Particular attention should be paid to security from surprise, for in mountainous country it is often practicable for an enemy to steal up unseen and thus make a sudden attack. Mountain batteries, therefore, should always have a tolerably strong escort of infantry detailed to them; part of the escort should remain in the immediate neighbourhood of the guns, and the remainder occupy the paths or other means of

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[1] Jervis.

[2] Chap. III., Art. 38.

[3] Napier, Vol. II.

access to the position to the flanks and rear, when the paths are not visible from the battery. The selection of suitable positions for guns, and taking advantage of the ground, is more difficult in mountainous than in an open or slightly intersected country; it requires special dexterity, experience, and a sharp and practised eye, accustomed to the peculiarities of mountain formations; these the battery commander must attain by study of the ground, so as not to lay himself open to repeated surprises and embarrassments without end in the command and employment of his battery on service. The best method of practising and preparing such batteries for service is to quarter them in mountainous localities in time of peace. When a mountain brigade in advancing comes upon an enemy and it is decided to attack him, the guns are immediately unpacked and put together. The battery commander, having received his instructions from the Brigadier, meanwhile selects a position for the battery such as to enable it to develop a satisfactory fire, and such that its fire shall be liable to interruption by the advance of the infantry at the latest possible period. The guns are then brought up to the position by the detachments and open fire.

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If our own troops retreat, the battery should be brought back to a position several hundred yards to the rear: that position should be particularly selected as one admitting of being long held and of a continuous fire. In such changes of position, the question as to whether the guns should be laden on the mules or not, must be decided by the style of engagement and the nature of the ground; generally speaking, the guns should be taken back by hand.[1]

SECTION II.

DEFILES.

1. The general rule to be observed in the operation of the attack of a defile, is that it is not safe to attack one however open, so long as the

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[1] Muller.

heights on each side are occupied by the enemy. A defile may consist, however, of a mountain gorge where the bordering cliffs may be inaccessible on both sides, or on one side only. Or it may be a mountain pass where the heights on both sides are accessible and of equal height, or where, both being accessible, one side commands the other. All these cases demand different dispositions. In the case where a road is hemmed in between mountains on one side, and a lake or unfordable river on the other, the lake or river is the same in principle and effect as if it were an inaccessible cliff.[1]

2. Where the bordering heights of a defile are inaccessible, it becomes a question with the assailants whether they will attack and carry the gorge by main force, or whether they will await the effect of a turning movement which would compel the enemy to abandon his position without fighting. The decision must be governed by the strength of the position, or by the time which the turning movement would occupy.[2]

3. Where a defile is bordered by accessible heights of equal elevation, three columns of attack must be formed, and the assault of the heights on each side must precede that of the gorge, which last must not be made until the flanking columns shall have acquired a firm footing on the heights. The advance of these last along the heights will render untenable the position of the defenders of the gorge itself, which may then be safely entered by the centre column, the latter regulating its advance through the gorge by that of the flanking columns on the heights above. When a defile is bordered by accessible heights, one of which decidedly commands the other, two columns of attack might be sufficient, although it would still be more prudent to sweep both sides.[3]

4. But an army charged with the defence of a defile would not usually oppose any serious resistance to the entrance of the enemy into the defile. Although the general might barricade the gorge and occupy the enclosing heights by flanking troops, this would only be as a sort of advanced post. His main defensive position would be in rear of the defile; because his army being there drawn up in battle array on its proper front, could act in all its parts with freedom, and would be able

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[1] MacDougall. [2] *Ibid.* [3] *Ibid.*

to overwhelm the enemy as he issued from the gorge in a long thin stream of troops, before the successive fractions of the latter could form for resistance.[1]

5. Napier remarking on the defence of the passage of defiles, says:— "It may be well to notice an error relative to the strength of mountain defiles, common enough even amongst men who, with some experience, have taken a contracted view of their profession. From such persons it is usual to hear of narrow passes, in which the greatest multitudes may be resisted. But, without stopping to prove that local strength is nothing, if the flanks can be turned by other roads, we may be certain that there are few positions so difficult as to render superior numbers of no avail. Where one man can climb another can, and a good and numerous infantry crowning the acclivities on the right and left of a disputed pass, will soon oblige the defenders to retreat, or to fight on equal terms. If this takes place at any point of an extended front of defiles, such as those of the Sierra Morena, the dangerous consequences to the whole of the beaten army are obvious. Hence such passes should only be considered as fixed points, around which an army should operate freely in defence of more exposed positions, for defiles are doors, the keys of which are on the summits of the hills around them. A bridge is a defile, yet troops are posted, not in the middle, but behind a bridge, to defend the passage. By extending this principle, we shall draw the greatest advantages from the strength of mountain passes. The practice of some great generals may, indeed, be quoted against this opinion; nevertheless, it seems more consonant to the true principles of war to place detachments in defiles, and keep the main body in some central point behind, ready to fall on the heads of the enemy's columns, as they issue from the gorges of the hills."[2]

6. The position in rear of a defile is the most advantageous one for the defender, and the circumstances are, on the whole, not more favourable to him than they are unfavourable to the enemy. He embraces the mouth of the defile with his position, he is possessed of all the advantages which a greater extent of front affords, he commands the defile and its exit with his fire and has a safe retreat. This situation is all the more favourable when the defile can be enfiladed, and when

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[1] MacDougall.

[2] Napier, Vol. III.

the ground in front of it can be commanded by artillery placed in suitable flank positions, and this is usually the case, especially with bridges, dikes and causeways. Bridges and causeways are most effectively defended when they lie at the concave (bending towards the defender) bend of a river.[1]

7. In a defile the position of affairs is much more favourable to the defender than when in front of one, because the assailant cannot make use of his superior strength, nor can he envelop the defender, and can only advance on him with an equal front; to the latter, also, previously constructed obstacles and other means of fortifying his position are available. Engagements on a large scale cannot take place in a defile, for there is not room to draw up many troops in position. They are generally fought for the purpose of gaining time, either in mountain passes, in forest defiles as rear guard actions, or when the defile is long, roomy, and not to be turned; the employment of artillery, however, is only to be recommended in the rarest instances, and when employed is seldom of much use, in consequence of the smallness of the field of view and of fire; its participation in the combat must be renounced if the passage is narrow and rugged, since this arm experiences the greatest difficulty in getting away from such a position; and it may be the cause of the most dangerous crisis by blocking up the road with its material. Should the artillery, nevertheless, be employed in the defence of a defile from the inside, we should be satisfied with the minimum of pieces, send back all unnecessary waggons, have a good wide road for retreat, or be prepared to expose a few pieces to capture. The most favourable point for a position is that where the defile contracts towards the enemy and widens out to the rear, where the ground rises gradually, and where a side defile, opening out on the main one, offers a flanking position; such a side defile should however, have a safe communication with the main defile.[2]

8. When turning a defile is possible without great loss of time, and without running too great a risk, this method should have the preference, as the least bloody and the most promising of success; for if it is undertaken with a superior force it must always place the defender in a very precarious position, when he is kept in play in front and

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[1] Taubert. [2] *Ibid.*

simultaneously prevented from effecting a seasonable retreat in rear. Where, however, the defile must be forced, a superior force should be placed in action in its front, and this force should be especially provided with a superior artillery.[1]

9. In mountain warfare, engagements take place chiefly in and about defiles, and about heights. The tactical importance of a defile depends on the strength of the troops who wish to pass it, on the style of engagement, on the nature of the ground in front or in rear of the defile, and on the dimensions of the defile. In general the defence of a defile is undertaken from the rear: rarely from the front or from the inside. A defensive position is taken up in front of a defile when in the act of retreating or when the nature of the ground is such as to present unusual advantages. In such case the guns should take post on the flank of the mouth of the defile, so as to be able to fire on the approaches and places of assembly of the enemy, and to ply the ground immediately in front with case shot. The guns, if possible, should be under artificial or natural cover, and should open fire as soon as the enemy comes within range. If our own troops are retreating, the battery should perseveringly continue firing as fast as possible until the troops have passed the defile; it should then retreat and take up a position some 800 yards in rear of the defile to prevent the enemy from debouching, at any rate to delay his opening fire as long as possible. In the attack of an enemy in a defensive position *in front* of a defile the guns should be placed in position short of the most effective range, one part in the prolongation of the defile and the other to the flank, thus bringing the enemy under a cross-fire. The attacking guns direct their fire at the mouth of the defile, enfilading it; while those to the flank engage the guns posted in defence. High-angle fire of common shells against the inside of the defile and against the enemy's guns, and low-angle fire for enfilading the defile and against the troops and guns in the open, will be found most suitable to the occasion. The defence of a defile by guns *inside* it, is not usually undertaken, for the retreat of the guns is generally involved in difficulty. Should, however, such a position have been taken up, the guns should be placed behind obstacles to bar the way; they should continue their fire until the

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[1] Taubert.

close approach of the enemy and the probability of losing the guns compel them to retreat. The artillery of the assailant can only rarely be used inside the defile; but when so used, its duty is to cannonade the position of the enemy in the defile, as well as any bodies of troops or *abattis* visible. Fire at both low and high angles of common shell is that best calculated to destroy obstacles and to turn out troops from behind them. The ranges may vary very considerably according to the length and other conditions of the defile. In defence *behind* a defile one part of the guns should be placed behind the mouth of the defile, at a distance short of the most effective range, enfilading the length of the defile and commanding the ground in front of the mouth; so as to impede the debouchment of the enemy's troops and guns, and to inflict on him the greatest possible loss at the moment of deployment and coming into action: the other part takes up a position to the flank and fire chiefly upon such of the enemy's troops and guns as succeed in gaining a position to the side of the mouth of the defile. When a considerable part of the strength of the enemy has passed the defile, the defender may still turn the balance of the fight to his advantage by his superiority in numbers, and by an energetic attack. The artillery should endeavour to shake the enemy by the liveliest fire against his front and flank and in conjunction with the infantry endeavour to drive him back into the defile; this, if successful, is always combined with very great loss to the enemy, and it may result in his total defeat. The assailant who has to pass through the defile should bring up guns with the first detachment of closely formed troops to the front of the exit of the defile. Their duty is to fire at and drive back the guns and troops of the enemy and thus to facilitate the sortie of our own troops. To engage the enemy's artillery successfully the assailant should support the guns in action by others in positions on the flank. In defending a height, the artillery should in the first instance impede the enemy's advance by its fire; to this end it should place itself at the edge of the height, it should fire on the lines of access to the front and more particularly on those points where the advance of the enemy is delayed by difficulties of ground. * * * * * * * *

The attack of a height should be commenced by artillery firing on and endeavouring to silence such of the enemy's guns as command the roads or paths giving access to the height. When the troops storm and when they have established themselves on the height, the guns should follow so as to co-operate in a further advance or in maintaining the ground taken.[1]

10. In the defence of defiles from a position in rear of the mouth, the artillery is the most effective arm, for the fire of its pieces commanding the defile and its opening, is always the most powerful means of impeding the passage and of rendering the deployment of the enemy's troops for action more difficult. In consequence of the large space which the position behind a defile affords, the necessary discretion can be used as to placing the artillery, and a reciprocal support of all three arms may be expected.[2]

11. In attacking a defile, or pass, the action of artillery is especially important. For the narrow space, while it may enable its occupants to hold the ground against superior forces of cavalry and infantry, must limit the number of their guns. The assailant should therefore bring an overpowering artillery fire to bear, and, while the fire should be convergent, the guns should be spread on an arc as wide as the ground admits of.[3]

12. It is contrary to all the usages of war to allow parks or batteries of artillery to enter a defile, unless you hold the further extremity. In case of retreat, the guns will embarrass your movements and be lost. They should be left in possession under a sufficient escort, until you are master of the opening.[4]

The Khyber pass, forced by the British.

13. "The urgent state of affairs in Affghanistan, caused General Pollock with 8000 men to determine to attempt the passage of the Khyber pass,* and on the 5th April, he advanced. This tremendous defile was defended by about 10,000 brave mountaineers, thoroughly skilled in this species of warfare. They had raised a strong breastwork to defend the narrow entrance, and their bands covered all the rocky and precipitous heights on the right and left, where they could take sure aim against the small column, which alone could march on the road beneath.

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* About ten miles west of Peshawur, extending about thirty miles in a westerly course.

[1] Muller. [2] Taubert. [3] Hand-Book. [4] Napoleon.

Two columns were formed, of twelve companies each. * * * Both columns in the face of a determined opposition, which they overcame in the most gallant style, succeeded in expelling the enemy from the crest of the hill. In this achievement they were much aided by * * the artillery, who threw in Shrapnel shells wherever opportunity offered. The assailants continued to drive the opposing force from height to height till they had cleared the whole range as far as Ali Musjid (a small fort). Awed by the success of these masterly operations, the enemy abandoned the barrier at the mouth of the pass, and the army, with treasure, ammunition, and baggage, marched through without opposition.

On the 6th Ali Musjid was attacked, and possession taken, after a slight resistance. A full command was thus obtained of the Khyber pass, and the route lay open to Jellalabad and into the interior of Cabul."[1]

Passage of the Balkan, by the Russians, in 1829.

14. After the battle of Kulewtscha, General Diebitsch encouraged by this and other circumstances, determined on the daring step of passing the Balkan, in preference to the alternative of undertaking another siege to secure more effectually his lines of communication. His plan being formed accordingly, he proceeded, on the approach of the troops hitherto employed in reducing Silistria, to make a more formidable demonstration against Schumla. So closely was this place invested, that the Grand Vizír, in expectation of an immediate assault, recalled a portion of his troops from the mountain passes, to aid in the defence of a position on which, in his opinion, everything depended. The defenders of the Balkan being thus seriously diminished, it only remained to attempt the passage before the Grand Vizír had time to discover and remedy his fatal error. In order to complete the deception, 10,000 men under General Krassowski were to press Schumla closely, whilst the main force, with an effective of about 30,000 men, feigned a retreat towards Silistria; but in reality with the intention of crossing the Balkan as a last resource, in preference to retreating across the

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[1] Murray.

Danube, which must otherwise have been the only alternative remaining to the Russians. On reaching Yeni Bazar, a distance of about six leagues, General Diebitsch suddenly, and to the Turks most unexpectedly, turned to the right. General Roth, with thirty-two guns, ten battalions of infantry, sixteen squadrons of cavalry, and two regiments of Cossacks, moved on Devna; General Rüdiger, with another force, reached Kupriquoi, whilst General Pahlen, with seventeen battalions, eight squadrons of cavalry, and thirty guns, occupied Yeni Bazar: to which the head-quarters were removed on the 18th of July. General Roth had, in the mean time, ascertained that only 3000 Turks, with twelve guns, were encamped at Pod-Bashi, on the Kamtschit. The advance commenced forthwith. Each soldier was provided with four days' provisions, and ten more were carried in the waggons attached to each regiment. General Roth found the Kamtschit almost undefended, and advancing to Dalgurado, carried the works on the height at that place; while Rüdiger easily turned and drove 1000 Turks from Oxmyele, where he took four guns and some of their baggage. A bridge was then thrown over the Kamtschit, and on the 19th, head-quarters were established at Dervish-Jowan. General Krassowski had orders to assault and carry Schumla, in case the Grand Vizír should pursue the Russians, with nearly the whole of his force; but the moment that Reschid Pasha became aware of the real object of General Diebitsch, he detached 10,000 men to intercept him at the pass of the Kamtschit, which he hoped was still maintained. But the handful of men who occupied that post, only 120 in all, could not offer any real resistance, the Russians therefore had already passed the bridge in question, as well as the most difficult part of the country in advance, and were far on the road towards Eski Bashli before the Grand Vizír's move was made. Head-quarters, in fact, reached this place in nine days from Schumla. In the mean time, General Roth advanced along the coast of the Black sea to Misivri, which capitulated on his approach; and he was thus enabled to push on to Bourgas and open a communication with the fleet. The figurative comparison of the number of Diebitsch's army to the leaves of the forest, which had been spread by the reports of the Bulgarians, acted like magic; Aidos, with all its stores, was abandoned, in consequence, by the retreating Turks. They were taken so completely by surprise, that they had not even offered any substantial resistance to the *coup de main* march by which the principal passes of the formidable barrier of the Hæmus had been already scaled. At this juncture, the posts occupied by General Diebitsch covered about 800 miles of country, viz, from Bourgas to the vicinity of Selimnia, and again from Tschenga to Omar Faki; with the additional serious disadvantage of a long line of communication with the Danube, which might be cut off. In fact, the latter consideration, together with the reported junction of Hussein Pasha and the Grand Vizír, caused such uneasiness, that General Diebitsch concentrated nearly the whole of his force, and made a retrograde movement on Selimnia with 25,000 men and ninety-six pieces of artillery. But, instead of encountering the expected army, he only found a small force of cavalry posted near the town, which gave way, after a smart affair, and the place was occupied. General Diebitsch now left a force to secure his communications, and resuming his advance forthwith, he encamped before Adrianople on the 19th of August in three divisions, with the right of the army leaning on the river Tschenga. Although the city was not fortified, and is, moreover, a good deal exposed to a fire from the Derbent heights and other commanding ground, the town might have afforded a strong *point d'appui* for defence; since those quarters which are separated from one another by the rivers Toncha, the Maritza, and Adra, could have successively offered serious resistance to the entrance of an enemy. But no preparations whatever had been made for this purpose, and a hasty capitulation enabled the Russians to enter Adrianople on the following morning. The *coup de main* thus successfully accomplished, and the retreat of some 20,000 Turks on Constantinople, had given the undisputed possession of the ancient capital of European Turkey to the enemy; but this had not been accomplished without serious loss: 10,000 men had perished in ten days during their mountain march, from fatigue and sickness, and great as well as unexpected advantages were not unattended by causes for deep and serious consideration.[1]

The pass of the Somosierra, forced by Napoleon.

15. The foot of the Somosierra, on the French patroles reaching it, on the 21st, was being intrenched in the gorge of the mountains by

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[1] Gen. F. R. Chesney.

above 6000 men. Napoleon, having resolved to force the Somosierra, and reach the capital before Castanos could arrive there; on the 30th, the French advanced guard reached the foot of the Somosierra. General St. Juan, whose force now amounted to 10 or 12,000 men, was judiciously posted; sixteen pieces of artillery, planted in the neck of the pass, swept the road along the whole ascent, which was exceedingly steep and favourable for the defence. The infantry were advantageously placed on the right and left, in lines, one above another, and some intrenchments made in the more open parts strengthened the whole position. At daybreak, three French battalions attacked St. Juan's right, three more assailed his left, and as many marched along the causeway in the centre, six guns supported the last column. The French wings soon spread over the mountain-side, and commenced a warm skirmishing fire. At this moment Napoleon arrived. He rode into the mouth of the pass, and attentively examined the scene before him. The infantry were making no progress; a thick fog mixed with smoke hung upon the ascent; suddenly, as if by inspiration, he ordered the Polish lancers of his guard to charge up the causeway, and seize the Spanish battery. The first squadron was thrown into confusion, by a fire which levelled the foremost ranks. General Krazinski rallied them in a moment, and under cover of the smoke, and the thick vapours of the morning, the regiment, with a fresh impetus, proceeded briskly up the mountain, sword in hand. As those gallant horsemen passed, all the Spanish infantry fired, and fled from the intrenchments on each side, towards the summit of the causeway; so that, when the Poles fell in among the gunners, and took the battery, the whole Spanish army was in flight, abandoning arms, ammunition, baggage, and a number of prisoners. This surprising exploit, in the glory it conferred upon one party, and the disgrace it heaped upon the other, can hardly be paralleled in the annals of war. It is indeed almost incredible, even to those who are acquainted with Spanish armies, that a position, in itself nearly impregnable, and defended by 12,000 men should, without any panic, but merely from a deliberate sense of danger, be abandoned, at the wild charge of a few squadrons, which two companies of good infantry would have effectually stopped. * * * * * *

* * * * * The charge of the Poles, viewed as a simple military operation, was extravagantly foolish, but taken as the result of

Napoleon's sagacious estimate of the real value of Spanish troops, and his promptitude in seizing the advantage, offered by the smoke and fog that clung to the side of the mountain, it was a felicitous example of intuitive genius.[1]

Attack on the pass of Biar, by the French.

16. "Murray's final position with the Allies, was about three miles from the pass of Biar. His left, composed of Whittingham's Spaniards, was intrenched on a rugged Sierra ending abruptly above Castalla, which, with its old castle crowning an isolated sugar-loaf hill, closed the right of that wing and was occupied in strength by Mackenzie's division.

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"The advanced guard, in the pass of Biar, about 2500 men was composed of two Italian regiments and a battalion of the 27th British; two companies of German riflemen, a troop of foreign hussars and six guns, four of which were mountain pieces. The ground was very strong and difficult, but at two o'clock in the afternoon, the French, having concentrated in front of the pass, their skirmishers swarmed up the steep rocks on either flank, with a surprising vigour and agility, and when they had gained the summit, the supporting columns advanced. Then the Allies, who had fought with resolution for about two hours, abandoned the pass with the loss of two guns and about thirty prisoners, retreating however in good order to the main position, for they were not followed beyond the mouth of the defile.

"Murray had only occupied his ground the night before, but he had studied it and intrenched it in parts. His right wing was quite refused, and so well covered by the barranco that nearly all the troops could have been employed as a reserve to the left wing, which was also very strongly posted and presented a front about two miles in extent. But notwithstanding the impregnable strength of the ground the English general shrunk from the contest, and while the head of the French column was advancing from the defile of Biar, thrice he gave his

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[1] Napier, Vol. I.

Quarter-Master-General orders to put the army in retreat, and the last time so preremptorily, that obedience must have ensued if at that moment the firing between the pickets and the French light troops had not begun.

"The French general seeing his principal column overthrown, and at every point having the worst of the fight, made two secondary attacks to cover the rallying of the defeated columns; but these also failing, his army was separated into three parts, namely the beaten troops which were in great confusion, the reserve on the minor heights from whence the attacking columns had advanced, and the cavalry far on the left of the plain.

"An able commander having a superior force, and the Allies were certainly the most numerous, would never have suffered the pass of Biar to be forced on the 12th, or if it were forced, he would have had his army well in hand behind it, ready to fall upon the head of the French column as it issued into the low ground.

"Suchet violated several of the most important maxims of art. For without an adequate object, he fought a battle, having a defile in his rear, and on ground where his cavalry, in which he was superior, could not act. Neither the general state of the French affairs, nor the particular circumstances, invited a decisive offensive movement at the time."[1]

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[1] Napier.

CHAPTER II.

SECTION I.

PASSAGE OF RIVERS.

1. The passage of a river in the face of an enemy is one of the most important operations that an army can be called on to execute. It may be performed either by open force or by stratagem. In the first case, the enemy is driven as far as possible from the opposite shore, by a brisk cannonade, and troops are then pushed over in boats or on rafts, in sufficient force to keep him in check during the construction of the bridge. In the second case, superior forces are to be assembled on one or more points of the river—carriages and boats are to be collected—batteries thrown up, and, in short, every possible demonstration is to be made, to persuade the enemy that a passage will be attempted at one of those points. When he has concentrated his forces to oppose the anticipated attack, the pontoons, or boats, may be removed during the night to a distance of some leagues, and be ready for throwing over the bridge at the dawn of day. Field artillery accompany the pontoon train, and take post on the banks of the river, so as to give a cross-fire on the ground in front of the intended bridge. Large bodies of troops are immediately passed over, to occupy every favourable point of the opposite bank, and drive off the enemy.[1]

2. The passage of a river itself, is a tactical operation; but the determination of the point of passage may have an important connection with all the operations taking place within the theatre of the war. The passage of the Rhine by General Moreau, in 1800, is an excellent illustration of the truth of this remark. Napoleon, a more skilful strategist than Moreau, desired him to cross at Schaffhausen in order to take Kray's whole army in reverse, to reach Ulm before him, to cut him off from Austria and hurl him back upon the Main. Moreau, who had already a bridge at Basle, preferred passing, with greater convenience to his army, in front of the enemy, to turning his extreme left. The tactical advantages seemed to his mind much more sure than the

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[1] Macaulay.

strategical; he preferred the certainty of a partial success to the risk attending a victory which would have been a decisive one. In the same campaign, Napoleon's passage of the Po is another example of the high strategic importance of the choice of the point of crossing. The army of the reserve, after the engagement of the Chinsella, could either march by the left bank of the Po to Turin, or cross the river at Crescentino and march directly to Genoa. Napoleon preferred to cross the Ticino, enter Milan, effect a junction with Moncey who was approaching with 20,000 men by the Saint Gothard pass, then to cross the Po at Piacenza, expecting to get before Mélas more certainly in that direction than if he came down too soon upon his line of retreat. The passage of the Danube at Donauwerth and Ingoldstadt in 1805, was a very similar operation. The direction chosen for the passage was the prime cause of the destruction of Mack's army. The proper strategic point of passage is easily determined by recollecting the principles laid down in Article 19 (vide decisive points of a theatre of war); and, it is here only necessary to remind the reader, that in crossing a river, as in every other operation, there are permanent or geographical decisive points, and others which are relative or eventual, depending on the distribution of the hostile forces. If the point selected combines strategic advantages with the tactical, no other point can be better; but if the locality presents obstacles exceedingly difficult to pass, another must be chosen, and in making the new selection care should be taken to have the direction of the movement as nearly as possible coincident with the true strategic direction. Independently of the general combinations, which exercise a great influence in fixing the point of passage, there is still another consideration, connected with the locality itself. The best position is that where the army after crossing can take its front of operations and line of battle perpendicular to the river, at least for the first marches, without being forced to separate into several corps moving upon different lines. This advantage will also save it the danger of fighting a battle with a river in rear, as happened to Napoleon at Essling.[1]

3. When the enemy's army is covered by a river, upon which he holds several *têtes-de-ponts*, do not attack it in front. This would divide

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[1] Jomini, Chap. V., Art. 38.

your force, and expose you to be turned. Approach the river in echelon of columns, in such a manner that the leading column shall be the only one the enemy can attack, without offering you his flank. In the mean time, let your light troops occupy the bank; and when you have decided on the point of passage, rush upon it and fling across your bridge. Observe, that the point of passage should be always at a distance from the leading echelon, in order to deceive the enemy.[1]

4. From the moment you are master of a position which commands the opposite bank, facilities are acquired for effecting the passage of the river; above all, if this position is sufficiently extensive to place upon it artillery in force. This advantage is diminished if the river is more than 300 toises (or 600 yards), in breadth, because the distance being out of the range of grape, it is easy for the troops which defend the passage to line the bank, and get under cover. Hence it follows that if the grenadiers, ordered to pass the river for the protection of the bridge, should reach the other side, they would be destroyed by the fire of the enemy; because his batteries, placed at the distance of 200 toises from the landing, are capable of a most destructive effect although removed above 500 toises from the batteries of the crossing force. Thus the advantage of the artillery would be exclusively his. For the same reason, the passage is impracticable, unless you succeed in surprising the enemy, and are protected by an intermediate island, or unless you are enabled to take advantage of an angle in the river, to establish a cross-fire upon his works. In this case, the island or angle forms a natural *tête-de-pont*, and gives the advantage in artillery to the attacking army. When a river is less than 60 toises (or 120 yards), in breadth, and you have a post upon the other side, the troops which are thrown across derive such advantages from the protection of your artillery, that, however small the angle may be, it is impossible for the enemy to prevent the establishment of a bridge. In this case the most skilful generals, when they have discovered the project of their adversary, and brought their own army to the point of crossing, usually content themselves with opposing the passage of the bridge, by forming a semicircle round its extremity, as round the opening of a defile, and removing to the distance of 300 or 400 toises from the fire of the opposite side.[2]

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[1] Napoleon. [2] *Ibid.*

5. An increase in the width of the river, increases in some respects the difficulties of the assailant, by augmenting the difficulty of throwing a bridge, without, however, materially altering the case. The first requisite for crossing is to establish some troops on the further bank to cover the passage of the rest. And this object will be greatly aided if artillery from the assailant's bank can bring such an effective fire to bear on the defender's infantry, which may seek to overwhelm those troops, as to keep it at a distance and prevent it from manœuvring, and also crush any batteries which the enemy may attempt to establish to prevent the passage. Thus, under the conditions of artillery up to ten years ago, if a river were only 200 yards wide, a defender's infantry assailing the first troops that passed over would be liable to be cut to pieces by the fire of the guns on the hither bank. But if the river were 800 yards wide, not only would the fire on the enemy's infantry at that range be less certain and effective, (since neither case shot from field guns, nor grape from guns of position, would reach it), but the defender's batteries established at 600 yards from the river would play effectively on the head of the bridge and the troops covering it, while their distance—1400 yards—from the assailant's bank would secure them from being overwhelmed by superior fire. These conditions have been altered, on the whole, in favour of the assailant by the improvement in weapons. For though the relations of the opposing batteries might remain unaltered, yet the infantry from the one bank could now bring an effective fire to the aid of their comrades on the other; and thus the largest force—which, by the conditions of the case, it is supposed the assailant would always bring to bear at the point of passage,—would prevail. If French troops crossing from Piacenza, and English troops thrown over the Douro at Oporto, in both cases far beyond the range of their comrades' muskets, could by surprise establish themselves and cover the passage, much more would such enterprises be likely to succeed when the first troops should be supported by the fire of the army on the other bank. And another circumstance in favour of the assailant is, that a large river will generally be navigable, and it and its tributaries will in most cases furnish a number of large boats sufficient to throw at once on the opposite bank a force capable of maintaining itself. The possession by the defender of fortresses or bridge-heads giving the command of both sides of a bridge modifies the con-

ditions of passing a river. If they exist on the flanks of a line of operation, it will generally be impossible to pass the river on a flank; for the force attempting the turning movement must pass completely round the fortified passage before it could aid in the attack on another passage not so guarded. Therefore, in such a case the passage will be sought on the front of the defensive line. And if the defender be entirely restricted to the defensive, he will still be probably unable to prevent the passage. The possession of the bridge-head of Mannheim did not prevent the French from crossing the Rhine; and even on the short line of the Mincio the fortresses of Mantua and Peschiera did not prevent the Allies from crossing between them in 1859. Their value to the defensive army will consist principally in the facility and support they would afford to it in assuming the offensive against the enemy on his own bank: and the degree of their influence must depend on their position.[1]

6. Jomini gives the following general rules to be observed :—

"(1) It is essential to deceive the enemy as to the point of passage, that he may not accumulate an opposing force there. In addition to the strategic demonstrations, false attacks must be made near the real one, to divide the attention and means of the enemy. For this purpose half of the artillery should be employed to make a great deal of noise at the points where the passage is not to be made, whilst perfect silence should be preserved where the real attempt is to be made.

"(2) The construction of the bridge should be covered as much as possible by troops sent over in boats, for the purpose of dislodging the enemy, who might interfere with the progress of the work; and these troops should take possession at once of any villages, woods, or other obstacles in the vicinity.

"(3) It is of importance also to arrange large batteries of heavy calibre, not only to sweep the opposite bank, but to silence any artillery the enemy might bring up to batter the bridge while building. For this purpose it is convenient to have the bank from which the passage is made somewhat higher than the other.

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[1] Hamley, Part V., Chap. III.

"(4) The proximity of a large island near the enemy's bank gives great facilities for passing over troops in boats and for constructing the bridge. In like manner, a smaller stream emptying into the larger one near the point of passage, is a favourable place for collecting and concealing boats and materials for the bridge.

"(5) It is well to choose a position where the river makes a re-entering bend, as the batteries on the assailant's side can cross their fire in front of the point where the troops are to land from the boats, and where the end of the bridge is to rest, thus taking the enemy in front and flank when he attempts to oppose the passage.

"(6) The locality selected should be good near roads on both banks, that the army may have good communications to the front and rear on both banks of the river. For this reason those points where the banks are high and steep should be usually avoided.

"The rules for preventing a passage follow as a matter of course from those for effecting it, as the duty of the defenders is to counteract the efforts of the assailants. The important thing is to have the course of the river watched by bodies of light troops, without attempting to make a defence at every point. Concentrate rapidly at the threatened point, in order to overwhelm the enemy, while a part only of his army shall have passed. Imitate the Duke of Vendôme at Cassano, and the Archduke Charles, at Essling in 1809; the last example being particularly worthy of praise, although the operation was not so decidedly successful as might have been expected."[1]

7. There are two features of the case of special significance—namely, that a river is generally winding, and that the higher bank is sometimes on one side, sometimes on the other. The object of an assailant will be to pass part of his troops at some point where he possesses the commanding bank, for he can thus, with comparative impunity, drive the defenders from the other shore, and bring his forces and materials for passing undiscovered to the spot. And if at that place the river also winds inward, indenting his front, he will, by disposing his troops round the bend, command and enclose the angle of the other bank. For instance, in the campaign of 1813, Napoleon wished to pass the Elbe,

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[1] Jomini, Chap. V., Art. 37.

near the village of Priesnitz. The conditions were favourable, for the French bank commanded the other, and the bend of the river there indented the French front. Three hundred men were thrown over in the night, and established themselves on the further side. They were attacked in the morning by superior forces, with artillery; but the French bringing 100 guns to bear from their own side, forced the enemy to retreat. During the following night nearly 3000 men crossed, and a work was constructed capable of holding two divisions; whereupon the enemy retired altogether. The conditions may be so favourable as to enable large masses to pass even in face of an assembled army. In 1809, Napoleon, after entering Vienna, and guarding all the bridges of the Danube up to Passau, wished to cross and attack the army of the Archduke Charles, then opposite Vienna, on the left bank. First, the Emperor seized the large island of Lobau, and connected it with the right bank by a long bridge. Then he accumulated on the island the means of crossing, together with a force of more than 20,000 men. The arm of the river is 120 yards wide, and makes a favourable bend; and by seizing the two villages of Aspern and Essling a space would be enclosed and secured, capable of holding a considerable force. On the 20th May bridges were thrown, two divisions crossed, and Aspern and Essling were seized. The Austrians, who had assembled on a height twelve miles up the river, came on in line of battle, and a desperate struggle ensued, chiefly for the possession of the villages. But the reinforcements to the French from the right bank came too slowly to maintain the battle; and the part of the army that had crossed, numbering, when first attacked, 30,000, afterwards 60,000, against 90,000 Austrians—was compelled to repass the branch of the stream to the Isle of Lobau.[1]

Successful Passage of the Danube, by Napoleon in 1809.

8. The measures taken to bring to a specified point of the Island of Lobau, "for the second passage of the Danube, before the battle of Wagram,"—the corps of the Viceroy of Italy from Hungary, that of

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[1] Hamley, Part V., Chap. III.

Marmont from Styria, that of Bernadotte from Linz,—are less wonderful than the famous imperial decree of thirty-one articles which regulated the details of the passage and the formation of the troops in the plains of Enzersdorf, in presence of 140,000 Austrians, and 500 cannon, as if the operation had been a military fête. These masses were all assembled upon the island on the evening of the 4th of July; three bridges were immediately thrown over an arm of the Danube, 150 yards wide, on a very dark night and amidst torrents of rain; 150,000 men passed over the bridges, in presence of a formidable enemy, and were drawn up before mid-day in the plain, three miles in advance of the bridges which they covered by a change of front; the whole being accomplished in less time than might have been supposed necessary, had it been a simple manœuvre for instruction, and after being several times repeated. The enemy, had, it is true, determined to offer no serious opposition to the passage, but Napoleon did not know that fact, and the merit of his dispositions is not all diminished by it.[1]

9. For a whole month, 'previous to the passage,' the artillery was actively employed in constructing bridges and forming batteries. The latter were scattered over the small islands of Moulin, Montebello, Spain and Alexandria; they consisted of forty 18-pounders, twenty-eight mortars which had been brought from Vienna, and several 12-pounder and 6-pounder batteries. Whilst the French were thus occupied, the Austrians, persuaded that the enemy would debouch on to the right bank, at the re-entering angle opposite Essling, surrounded that side of the island of Lobau with a line of retrenchments which united Aspern, Essling and Enzersdorf. On the evening of the 4th July, 1809, Napoleon amassed his army in that island. The Austrian artillery, placed in rear of the retrenchments, might have caused fearful havoc in this vast assemblage of troops; but it began to fire too late; and hardly had it thrown a few shells, when the whole of the French batteries directed a heavy fire against the village of Enzersdorf, destroying the neighbouring retrenchments and silencing the Austrian artillery. The night was black and stormy. The pontooniers, by the help of the light afforded by the burning of the village of Enzersdorf, threw four bridges towards Mulhausen; and, in spite of the bad weather, the

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[1] Jomini, Chap. VI., Art. 41.

passage was effected steadily and with regularity; the troops forming line as they crossed, supporting their left on the Danube, and menacing to turn the Austrian retrenchments. To a frightful night succeeded the beautiful day of the 5th. The Archduke Charles had wished to oppose the passage of the river, so as to give the Archduke John time to reach him; but the manœuvres of Napoleon having altered his plan, he abandoned his position after a short resistance, and took up another in the extensive plain between the Danube and the stream of the Rusback.[1]

10. In the great elbows of rivers, the current is less rapid than in other parts; and small islands are frequently found there, which facilitate the construction of the bridges, as well as their defence when completed. Choose that part of a river near which bays or inlets are formed, or where another stream emptying itself into it, presents a situation in which you may launch your pontoons, or boats, out of view of the enemy, and whence you may proceed with the current to the intended point of passage. One very influential point in the selection for the passage of a river will frequently be the nature of the roads, by which the pontoon train is to travel to get to the given point, or to some point at no great distance from which the pontoons, &c., may be carried by working parties to the bank of the river. * * * * Ascertain, if practicable, whether the anchorage be good; for if it be not, great difficulty will often be found in establishing the bridges in a secure manner.[2]

11. It sometimes happens that, for cogent reasons, a double passage is attempted upon a single front of operations, as was the case with Jourdon and Moreau in 1796. If the advantage is gained of having in case of need a double line of retreat, there is the inconvenience in thus operating on the two extremities of the enemy's front, of forcing him, in a measure, to concentrate on his centre, and he may be placed in a condition to overwhelm separately the two armies which have crossed at different points. Such an operation will always lead to disastrous results, when the opposing general has sufficient ability to know how to

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[1] Jervis. [2] Macaulay.

take advantage of this violation of principles. In such a case, the inconveniences of the double passage may be diminished by passing over the mass of the forces at one of the points, which then becomes the decisive one, and by concentrating the two portions by interior lines as rapidly as possible, to prevent the enemy from destroying them separately. If Jourdan and Moreau had observed this rule, and made a junction of their forces in the direction of Donauwerth instead of moving eccentrically, they would probably have achieved great successes in Bavaria, instead of being driven back upon the Rhine.[1]

12. It will be a great advantage to find unguarded or weakly guarded, on the opposite bank, some easily defensible point, such as a village, a church, a farm, buildings, or a small wood. For as the necessary preliminary to throwing a bridge is to establish a party on the opposite bank, so some defensible point will enable the first troops to hold their ground, and to protect the construction of the bridge, or the completion of other modes of sending the rest of the troops across, such as the passage by boats or rafts. The seizure of the Portuguese seminary on the further bank of the Douro, by Wellington's advanced guard, is a well known example. Even when a permanent bridge is mastered, it will be necessary to throw other bridges at convenient spots near it, so as to concentrate on the other bank faster than the enemy; and throughout the operation feints should be persisted in at other points, to confuse and deceive the opposing general. A force then, being thrown across sufficient to deal with any that the defender can assemble at that point, it may advance along the bank and assail in flank or rear the defenders of some important neighbouring passage, at the same time that another column makes a direct attack from the other bank on the same bridge. This is the usual method of gaining a footing,—and it may be executed either between the extremities of the enemy's line, or beyond one extremity—that is to say, either by breaking his front or turning his flank. The expediency of preferring either of these methods to the other must depend in great measure on the dispositions of the defender. For he must conduct the defence in one of two ways; either he must guard only the passages on the direct line of operation—in which case his front, too compact to be broken, may be turned; or he will guard all

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[1] Jomini, Chap. V., Art. 38.

the passages by which the assailant can possibly seek to pass—in which case his front, thus dangerously extended, should be broken.[1]

Passage of the Douro, by Wellington.

13. The passage of the Douro, by Sir Arthur Wellesley, 12th May, 1809, was immediately after the river had been passed by the French under Soult, continuing their retreat, and destroying the bridge across it from Villa Nova to Oporto. Soult, at Salamanca, would be more formidable than Soult at Oporto, and hence the ultimate object of the campaign, and the immediate safety of Beresford's corps, alike demanded that the Douro should be quickly passed. But, how force the passage of a river, deep, swift, and more than 300 yards wide, while 10,000 veterans guarded the opposite bank? Alexander the Great might have turned from it without shame!

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From the summit of the height of Sarea, the English general, with an eagle's glance, searched all the opposite bank and the city and country beyond it. He observed horses and baggage moving on the road to Vallonga, and the dust of columns as if in retreat, and no large body of troops was to be seen under arms near the river. The French guards were few, and distant from each other, and the patrols were neither many nor vigilant; but a large unfinished building standing alone, yet with a short and easy access to it from the river, soon fixed Sir Arthur's attention. This building, called the Seminary, was surrounded by a high stone wall, which coming down to the water on either side, enclosed an area sufficient to contain at least two battalions in order of battle; the only egress being by an iron gate opening on the Vallonga road. The structure itself commanded everything in its neighbourhood, except a mound, within cannon shot, but too pointed to hold a gun. There were no French posts near, and the direct line of passage from the height of Sarea, across the river to the building, being to the right hand, was of course hidden from the troops in the town. Here, then, with a marvellous hardihood, Sir Arthur resolved, if he could find but one boat, to make his way, in the face of a veteran army and a renowned general. A boat was soon obtained; for a poor barber of Oporto, evading the French patrols, had, during the night, come over the water in a small skiff; this being discovered by Colonel Waters, a staff officer, of a quick and daring temper, he and the barber, and the prior of Amarante, who gallantly offered his aid, crossed the river, and in half an hour returned, unperceived, with three or four large barges. Meanwhile, eighteen or twenty pieces of artillery were got up to the convent of Sarea; and Major-General John Murray, with the German brigade, some squadrons of the 14th Dragoons, and two guns, reached the Barca de Avintas, three miles higher up the river, his orders being to search for boats, and to effect a passage there also, if possible. Some of the British troops were now sent towards Avintas, to support Murray; while others came cautiously forwards to the brink of the river. It was ten o'clock; the enemy were tranquil and unsuspicious; and an officer reported to Sir Arthur Wellesley that one boat was brought up to the point of passage, "*Well, let the men cross,*" was the reply; and upon this simple order, an officer and twenty-five soldiers, of the Buffs, entered the vessel, and in a quarter of an hour were in the midst of the French army. The Seminary was thus gained without any alarm being given, and everything was still quiet in Oporto; not a movement was to be seen; not a hostile sound was to be heard: a second boat followed the first, and then a third passed a little higher up the river; but scarcely had the men from the last landed, when a tumultuous noise of drums and shouts arose in the city; confused masses of the enemy were seen hurrying forth in all directions, and throwing out clouds of skirmishers, who came furiously down upon the Seminary. The citizens were descried gesticulating vehemently, and making signals from their houses; and the British troops instantly crowded to the bank of the river; Paget's and Hill's divisions at the point of embarkation, and Sherbrooke's, where the old boat-bridge had been cut away from Villa Nova. Paget himself passed in the third boat, and mounting the roof of the Seminary, was immediately struck down, severely wounded. Hill took Paget's place; the musketry was sharp, voluble and increasing every moment as the number accumulated on both sides. The enemy's attack was fierce and constant; his fire augmented faster than that of the British, and his artillery, also, began to play on the building. But the English guns, from the convent of Sarea, commanded the whole enclosure round the Seminary, and swept the left of the wall in such a manner as to confine the French assault to the side of the iron gate. Murray, however, did not appear; and the struggle was so violent, and the moment so critical, that Sir Arthur would himself have crossed, but for the earnest representations of those about him, and the just confidence he had in General Hill. Some of the citizens now pushed over to Villa Nova with several great boats; Sherbrooke's people began to cross in large bodies; and, at the same moment, a loud shout in the town, and the waving of handkerchiefs from all the windows, gave notice that the enemy had abandoned the lower part of the city: and now, also, Murray's troops were seen descending the right bank from Avintas. By this time three battalions were in the Seminary; and Hill, advancing to the enclosure wall, opened a destructive fire upon the French columns as they passed, in haste and confusion, by the Vallonga road. * * * * *

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[1] Hamley, Part V., Chap. III.

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To the left, General Sherbrooke, with the brigade of Guards, and the 29th Regiment, was in the town, and pressing the rear of the enemy, who were quitting it. In the centre, General Hill, holding the Seminary and the wall of the enclosure, with the Buffs, the 48th, the 66th, the 16th Portuguese, and a battalion of detachments, sent a damaging fire into the masses as they passed him; and his line was prolonged on the right, although with a considerable interval, by General Murray's Germans, and two squadrons of the 14th Dragoons. The remainder of the army kept passing the river at different points; and the artillery, from the height of Sarea, still searched the enemy's columns as they hurried along the line of retreat.[1]

14. The passage of the Douro, at Oporto, would, at first sight, seem a rash undertaking; but, when examined closely, it proves to be an example of consummate generalship, both in the conception and the execution. The careless watch maintained by the French may, indeed, be called fortunate, because it permitted the English general to get a few men over unperceived; but it was not 25, nor 2500 soldiers that could have maintained themselves, if heedlessly cast on the other side.

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[1] Napier, Vol. II.

Sir Arthur, when he so coolly said—"Let them pass,"—was prepared to protect them when they had passed. He did not give that order, until he knew that Murray had found boats at Avintas, to ferry over a considerable number of troops, and, consequently, that that general, descending the Douro, could cover the right flank of the Seminary, while the guns planted on the heights of Sarea could sweep the left flank, and search all the ground enclosed by the wall round the building. If General Murray's troops only had passed, they would have been compromised; if the whole army had made the attempt at Avintas, its march would have been discovered; but in the double passage all was secured: the men in the Seminary by the guns, by the strength of the building, and by Murray's troops; the latter, by the surprise on the town, which drew the enemy's attention away from them. Hence, it was only necessary to throw a few brave men into the Seminary unperceived, and then the success was almost certain; because, while that building was maintained, the troops in the act of passing could neither be prevented nor harmed by the enemy. To attain great objects by simple means is the highest effort of genius.[1]

Passage of the Garonne, at Toulouse.

15. The Garonne, flowing on the west, presented to the Allies a deep loop, at the bottom of which was the bridge, completely covered by the suburb of St. Cyprien, itself protected by an ancient brick wall three feet thick and flanked by two massive towers; these defences Soult had improved and he added a line of exterior intrenchments. Beyond the Garonne was the city, surrounded by an old wall flanked with towers, and so thick as to admit of sixteen and twenty-four pounder guns. The great canal of Languedoc, which joined the Garonne a few miles below the town, wound for the most part within point-blank shot of the walls, covering them on the north and east, as the Garonne and St. Cyprien did on the west. The suburbs of St. Stephen and Guillermerie, built on both sides of this canal, furnished outworks on the west, for they were intrenched and connected with and covered by the hills of Sacarin

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[1] Napier, Vol. II.

and Cambon, also intrenched and flanking the approaches to the canal both above and below these suburbs. 800 yards beyond these hills a strong ridge, called the Mont Rave, ran nearly parallel with the canal, its outer slope was exceedingly rugged and overlooked a marshy plain through which the Ers river flowed. The south side of the town opened on a plain, but the suburb of St. Michael lying there, between the Garonne and the canal, furnished another advanced defence and at some distance beyond, a range of heights called the Peck David commenced, trending up the Garonne in a direction nearly parallel to that river. Such being the French general's position, he calculated that, as Lord Wellington could not force the passage by the suburb of St. Cyprien without an enormous sacrifice of men, he must seek to turn the flanks above or below Toulouse, and leave a sufficient force to blockade St. Cyprien under the pain of having the French army issue on that side against his communications. If he passed the Garonne above its confluence with the Arriege, he would have to cross that river also, which could not be effected nearer than Cintegabelle, one march higher up. Then he must come down by the right of the Arriege, an operation not to be feared in a country which the recent rains had rendered impracticable for guns. If the Allies passed the Garonne below the confluence of the Arriege, Soult judged that he could from Peck David, and its continuation, overlook their movements, and that he should be in position to fall upon the head of their column while in the disorder of passing the river: if he failed in this he had still Toulouse and the heights of Mont Rave to retire upon, where he could fight again, his retreat being secure upon Montauban. For these reasons the passage of the Garonne above Toulouse would lead to no decisive result and he did not fear it, but a passage below the city was a different matter. Lord Wellington could thus cut him off from Montauban and attack Toulouse from the northern and eastern quarters; and if the French then lost the battle they could only retreat by Carcassonne to form a junction with Suchet in Roussillon, where having their backs to the mountains and the Allies between them and France they could not exist.

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It has been already shewn that in a strategic view the passage should have been made below the town, but seeing that the south side was the most open to attack, the English general resolved to cast his bridge at

Portet, six miles above Toulouse, designing to throw his right wing suddenly into the open country between the Garonne and the canal of Languedoc, while with his centre and left he assailed the suburb of St. Cyprien. With this object, at eight o'clock in the evening of the 27th, one of Hill's brigades marched up from Muret, some men were ferried over and the bridge was commenced, the remainder of that general's troops being to pass at midnight. But when the river was measured the width was found too great for the pontoons, aud there were no means of substituting trestles, wherefore this plan was abandoned. Had it been executed, some considerable advantage would probably have been gained, since it does not appear that Soult knew of the attempt until two days later, and then only by his emissaries, not by his scouts.

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During the night of the 30th, a new bridge being laid near Pensaguel, two miles above the confluence of the Arriege, General Hill passed the Garonne with two divisions of infantry, Morillo's Spaniards, Gardiner's and Maxwell's artillery, and Fane's cavalry, in all 13,000 sabres and bayonets, eighteen guns, and a rocket brigade. The advanced guard moved with all expedition by the great road, having orders to seize the stone bridge of Cintegabelle fifteen miles up the Arriege, and, on the march to secure a ferry-boat known to be at Vinergue.[1]

16. • • • General Hill effected indeed the passage of the Arriege at Cintegabelle, and sent his cavalry towards Ville franche and Nailloux, but his artillery were quite unable to move in the deep country there, and as success and safety alike depended on rapidity he returned during the night to Pinsaguel, recrossed the Garonne, and taking up his pontoons left only a flying bridge with a small guard of infantry and cavalry on the right bank. • • • • •

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Meanwhile the Garonne continued so full and rapid that Lord Wellington was forced to remain inactive before St. Cyprien until the evening of the 3rd April; then the waters falling, the pontoons were carried in the night to Grenade, fifteen miles below Toulouse where the bridge was at last thrown and thirty guns placed in battery on the left bank to protect it. The third, fourth, and sixth divisions of infantry and three brigades of cavalry, the whole under Beresford immediately passed, and the cavalry being pushed out two leagues on the front and flanks, captured a large herd of bullocks destined for the French army. * * * * * * * * *

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[1] Napier, Vol. VI.

Soult merely observing Beresford with his cavalry continued to strengthen his field of battle about Toulouse, his resolution to keep that city being confirmed by hearing on the 7th that the Allied Sovereigns had entered Paris.[1]

Napoleon's passage of the Berezina.

17. 'Previous to the passage of the Berezina, in 1812,' on the retreat of the French army from Russia, Napoleon halted at Lochnitza on the 23rd of November, and his army was beginning to assemble on the heights above Borissof. The Russian admiral, having recovered from his surprise, had assembled his forces on the opposite bank. Napoleon made demonstrations at various points, as if he intended to cross the river below Borissof; these had the desired effect of deceiving Tschichagof, whose anxiety caused him to detach troops in various directions, but principally towards the south, from the town where there was a ford. Finding that his feints succeeded, and having sent to explore a favourable point for a passage of the river near Studenski, a village northward from Borissof, and about twelve versts, or eight English miles, higher up the river, Napoleon put his columns in motion upon this point in the night of the 24th of November, and arrived there himself on the following morning with the corps of Oudinot. The engineers immediately commenced the construction of two bridges; some Polish cavalry and light infantry were passed over to reconnoitre the opposite bank, and large batteries were established on the heights of Studenski to protect the work. * * * * * * In the course of the 27th November, the greater part of the French army succeeded in crossing the Berezina, while Victor, with his corps, occupied a position, strengthened by a redoubt which covered the entrance to the bridge.[2]

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[1] Napier, Vol. VI.

[2] [illegible]

18. To defend a river, on a long line, is generally hopeless, and especially when the defenders have not the means of passing freely, in several places, to the opposite bank. Alexander, Hannibal, Cæsar, Gustavus, Turenne, Napoleon, Wellington, and hundreds of others have shown how the passage of rivers may be won. The defence of rivers having always proved fruitless, it follows that no general should calculate upon success, and that he should exert the greatest energy, activity, and vigilance to avoid a heavy disaster; that all his lines of retreat should be kept free and open, and be concentric; and that to bring his magazines and depôts close up to the army, in such a situation, is rashness itself.[1]

19. It is difficult to prevent an enemy, supplied with pontoons, from crossing a river. When the object of an army, which defends the passage, is to cover a siege, the moment the general has ascertained his inability to oppose the passage, he should take measures to arrive before the enemy at an intermediate position, between the river he defends and the place he desires to cover.[2]

20. Frederick the Great, in his Military Instructions, laid it down that 'Nothing is more difficult, not to say impossible, than to prevent an enemy from passing a river; especially if the front of attack be too extensive. It is indeed so extremely difficult, that, if the part to be defended should extend above five or six leagues, he would not attempt it, unless he had several redoubts thrown up on the banks of the rivers; moreover, there must be no part of it fordable.'

21. When the defender sees that the passage cannot be opposed, his usual course will be to take a position in the neighbourhood of the bridge; and the assailant, after passing, cannot manœuvre to turn this position, for by doing so he would uncover the bridge, the sole link in that part of his line of operation. He must therefore make a direct attack on the position, which will almost certainly be on commanding ground. After his repulse, at Essling, Napoleon accumulated on the Island of Lobau such ample means of passage, and so strengthened his communications with the Vienna side of the river, that it was in vain to attempt to oppose his landing; the Austrian army, therefore,

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[1] Napier. [2] Napoleon.

took post six miles off, on the heights of Wagram, its right stretching towards the Danube. Napoleon, after passing, formed his columns of attack, and was victorious in the battle. In 1862, Burnside threw the Federal army on the right bank of the Rappahannock, at Fredericksburg, almost without opposition, covered by his powerful artillery. Lee observed the passage from his position on the opposite heights, and received the Federals when they advanced to attack him, with so destructive a fire that they were driven in route over the river.[1]

22. When the most important passages on the main line of operation present conditions specially favourable to the assailant, it will be difficult and hazardous to oppose the passage. So important is the circumstance of the hither bank commanding the further, that the Austrian army drawn up behind the Mincio, in 1859, to await the French and Sardinians, quitted its position and crossed the river to seek its adversaries; "for," said Giulay, the Austrian general, "the enemy, whom it is impossible to observe from the left bank, can mask his movements and bring all his forces suddenly on any point, before our troops can be warned and concentrated." And he had a precedent to justify his opinion, for in 1796, the Austrians being on the defensive from Peschiera to Mantua, Napoleon broke their front by crossing at Valeggio. Yet the Mincio possessed otherwise great advantages for defence, being a short line, secure on the flanks, and having two issues over it secured by Austrian fortresses. It may be assumed, then, that when the assailant's bank decidedly commands the other throughout its length, or at the points where the roads forming the line of operation cross, the river is unsuitable for a defensive line. But it must be observed that the mere command of one bank over the other will not be promptly effectual unless the opposing troops are unable to obtain shelter from the assailant's fire. It will naturally often happen that villages or towns are situated on one or both sides of a bridge. In this case, even if the assailant's bank has a moderate command, the buildings on the other side may, for a time, be defensible. At the battle of La Rothière, in 1814, the French right rested on the bridge of Dienville, on the Aube; and the Austrians sought to turn that flank by sending a corps along the

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[1] Hamley, Part V., Chap. III.

other bank. The Austrian bank commanded the other by about thirty feet, rising abruptly to a plateau less than fifty yards from the bridge, which was ninety-five yards long and five yards wide. But at twenty or thirty yards from its extremity on the French side was a substantial church, proof against field artillery, backed and flanked by the houses of the place. This was occupied so successfully that the Austrians were unable to pass the bridge throughout the battle, or even to drive over the river a French detachment on the left bank.[1]

23. In the defence of the passage of a river, the heaviest guns should be posted so as to command the bridges, fords, and the approaches thereto, and to take in flank any troops which may have already crossed the river. The other guns should be placed so that they may be able to concentrate their fire upon the main body of an approaching enemy. In the defence of a *tête-de-pont*, two batteries should be posted, so as to play upon the advancing troops, and a third battery should be placed directly in rear of the bridge, in order to prevent its use or repair by the enemy after the work has been taken.[2]

SECTION II.

TÊTES-DE-PONTS.

1. Regarding a bridge as a defile, the passage over it by an enemy advancing to attack you, will be best disputed by taking post in rear of the bridge; and if this was all requiring to be considered, this mode would be always followed: but if the *possession* of the bridge is necessary to the army, it must be protected from injury, otherwise the passage of the enemy would be best prevented by blowing it up or dismantling it (which measure would always be adopted by a retreating army to stop pursuit). The field works therefore which protect the bridge (commonly called the *tête-de-pont*) should be so situated in front as to cover it from the enemy's guns, and should be of such a

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[1] Hamley, Part V., Chap III.

[2] Owen.

nature as to afford the defending army a very strong position for battle in front of the bridge, and a secure protection during its retreat across the bridge if defeated. Sometimes, and it is a great advantage, field-works are constructed in rear as well as in front, to afford the retreating army a rallying position, in which it may almost certainly defeat all attempts of the enemy to follow. And in some cases the *tête-de-pont* is double, that is, works are constructed to defend an approach to the bridge from either side.[1] * * *

2. *Têtes-de-ponts,* are the most important of all field-works. The difficulties of crossing a river, particularly a large one, in the face of the enemy, demonstrate abundantly the immense utility of such works, which can be less easily dispensed with than intrenched camps, since if the bridges are safe, an army is insured from the disastrous events which may attend a rapid retreat across a large river.[2]

3. Bousmard, says, a *tête-de-pont* ought to unite the properties of a perfect defence of the river on both sides, to cover the bridge well, with space sufficient to contain the garrison, and furnish a free passage of a considerable body of troops, affording also facilities for their advance or retreat. The *tête-de-pont,* should also be of itself sufficiently strong to resist an assault. The construction will very much depend upon the nature of the ground and the object in placing the bridge, whether for a permanency or for temporary purposes: if the former, some care must be taken in the construction, and if the ground is very low, the ditches may be wet. Works to cover bridges of stone or wood, of a permanent nature, may be made of some existing buildings, loopholed and barricaded on both sides of the river, and artillery planted on the near side of the river to flank and protect the advance works; the object being to prevent any small bodies of the enemy destroying the bridge, and thus interrupting the communication.

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The following should be attended to in the selection of sites, as well as in forming the works:—

The bridge-head should admit of a defence, until all the troops have passed. It should cover the bridge from the enemy's artillery. If there are islands in the river, they may be fortified with advantage.[3]

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[1] MacDougall.

[2] Jomini, Chap. III., Art. 28.

[3] (Aide-Mémoire). G.G.L.

4. The ground in front of the bridge ought, if possible, to be so occupied as to cover the bridge from the fire of the enemy's artillery; the possibility of this being done depends altogether on the selection of site, in the choice of which many equally important objects require to be considered. The business of the engineer is to cover the bridge, as far as practicable, with few works, requiring small garrisons, that as great a number of troops as possible may be spared for the operations in the field, by which the fate of a campaign is in most cases decided. From these considerations it would appear that a bridge-head, to cover an important communication, might be advantageously traced in the following manner:—At distances of about 250 yards apart, and 300 yards from the bridge, the salient angles of detached bastions may be placed: these bastions should be closed with a ditch and parapet at the gorge, forming a system of redoubts mutually defending each other. The head of the bridge should be protected by a good stockade or redan. The redoubts completed, ditches may be excavated between them, and the earth thrown up be formed into curtains, traverses, and parapets to flank the ditches of the redoubts. In this manner, a defensive arrangement of works may be made, possessing all the advantages of a system of bastioned lines, and requiring only to have three or four redoubts well manned. Another mode of tracing a bridge-head would be to place lunettes, mutually flanking each other, from 300 to 900 yards from the head of the bridge—their intervals and gorges being swept by the fire of a fort, constructed to cover the head of the bridge, and to afford a place of retreat for the defenders of the advanced works, if the enemy should succeed in forcing them. * * * * * *
Instead of being parallel to the frontier, the river may be perpendicular to it, in which case both banks must be occupied by the defenders, and a double bridge-head be constructed, which offers the great advantage of enabling you to oppose the enemy on either bank. To derive the greatest benefit from a river under these circumstances, several bridges should be established on it; so that if the enemy succeed in cutting off the communication by any one of them, a retreat may still be open by another. The detached works of a bridge-head should be constructed to contain about 200 men each, should have their gorges defended by good stockades, and in their interior a small tambour or block-house of timber.[1]

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[1] Macaulay.

CHAPTER III.

SECTION I.

RECONNAISSANCE.

1. "Military reconnaissance," or the examination of ground with a view to conducting military operations, is a subject of great importance in war. Knowledge of the country may, indeed, be considered as the basis of the duties of the quartermaster-general's department on a campaign. Every officer of that department, at least, if not every staff officer, should therefore be able to reconnoitre a country. Reconnaissances, are of two kinds.

(1) Reconnoitring the enemy.

(2) "Topographical" or special reconnaissances of ground."

An enemy may be reconnoitred either secretly, or openly by force. In the first case, the reconnaissance is executed by an officer either alone or accompanied by a small escort; he endeavours to approach the enemy's position as near as he can, and to ascertain his strength and his intentions. In the second case, the reconnaissance is conducted by a general officer, who at the head of a considerable force, marches openly towards the enemy, drives in his outposts, and forces him to discover his position and his line of battle. Such reconnaissances are called "armed reconnaissances" or "reconnaissances in force." They often lead to collisions, sometimes even to general actions.[1]

2. The first step towards a military success is to know where the enemy is, and what he is doing. And this is not always so easy as might be supposed, for the extent of the operations of great armies confuses inquiry, and sometimes a great obstacle draws over the hostile front an impenetrable veil. When in 1859, the armies fronted each other on the Po, Giulay could devise no better plan for discovering the motions of the enemy than sending a whole *corps d'armée* across the river to make a reconnaissance in force. The great disadvantage of this

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[1] W. C. E. Napier.

operation is that, as the troops employed are intended only to unmask the enemy and then make good their retreat, they always retire from an action with the air and reputation of defeat.[1]

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3. If a reconnaissance is to remain secret from the enemy; it should, generally speaking, start either at dusk or during the night. This is the only means of its departure not being betrayed too soon, as it is then easier to march unperceived between the enemy's outposts; and, before daylight, the detachment will find itself in that part of the country which is occupied by the enemy, yet beyond the radius of the circle of his particular vigilance, as well as that of the ground patrolled. Besides, if the detachment is discovered, it can, during the night, mislead the enemy by taking another road, so as to avoid a failure at the very beginning of the operation.[2]

4. From commanding ground, or before an enemy who is negligent in covering his front, much may be learnt by a practised general without making an actual attack. Napoleon spent part of the day before Austerlitz at the outposts, while in his front, the valley of the Goldbach, and the opposite slopes, were covered with cavalry skirmishers, amidst whom rode experienced officers, from whose observations, joined to his own, the Emperor deciphered accurately the movements and designs of the adversary.[3]

5. Some knowledge of fortification is also necessary, both to enable an officer correctly to describe and sketch a fortress or field works which he may be ordered to reconnoitre, and enable him to judge of the best position for, and the trace of, any works which he may recommend for the purpose of strengthening a position which he has been ordered to report upon. * * The habit of observing ground with reference to military operations is most useful. This power of seizing at once the capabilities of ground, and which is called the military "*coup-d'œil*," is a natural gift. But it may be acquired to a certain extent by accustoming one's-self in one's daily walks and rides to examine the country with the eye of a soldier, observing the positions it affords, and considering the means of attacking or defending them, estimating the number of troops required for their occupation, noting the places best

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[1] Hamley, Part VI., Chap. VI. [2] Jervis. [3] Hamley, Part VI., Chap. VI.

suited for camps, the nature and direction of the roads, the rivers, the swiftness of the current, the nature of the banks, the bridges and fords, and other details. In this way the eye becomes accustomed to judge and to observe.[1]

6. In reconnoitring a position with a view to its military occupation, the first thing is to ride over it and examine it carefully, and then to make a sketch of it The number and description of troops necessary to occupy it, and their distribution, should then be considered. This will depend upon the extent of the position, its strength, the nature of the ground, and the number of the enemy. No fixed rules can be laid down upon this point. Nothing but experience, joined to natural capacity, will enable a general to occupy a position in a masterly manner. As a rough guide, however, as to the extent of ground which troops cover, it may be said that 5,200 infantry drawn up in line two deep will occupy a mile. But as troops are generally drawn up in two or more lines, with a reserve, this number may be considerably increased, even trebled. Or, if the troops are drawn up in column, a still greater number may be placed on that extent of front. At Waterloo, for instance, the British army of 68,000 men occupied about two miles and and a quarter of front, while the French army was quite as closely packed; so that there is really no general rule about the matter. Cavalry and artillery take up more room than infantry, and a very accurate knowledge of the space occupied by the three arms in their several formations is necessary to enable an officer to occupy ground correctly.[2]

7. Information should be obtained, and noted on the following subjects. What parts of the country are mountainous, or hilly, and what are level; whether the hills are steep, broken by rocky ground, rise by gradual and easy slopes, or if the ground is undulated only in gentle swells. In what direction the ridges run, and which are their steepest sides. The nature and extent of their valleys, ravines, where they originate, in what direction they run, whether difficult of access, or to be easily passed. Whether the country is barren, or cultivated; and what is the kind of cultivation. If a country of pasturage, whether it is grazed by cattle, by sheep, or by horses, and in what numbers; what

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[1] W. C. E. Napier. [2] *Ibid.*

parts of the country are open, and what are enclosed, and the description of the enclosures. What parts of the country are wooded, and with what species of trees. What the nature of the soil. What is the nature of the country, in reference to the operations of troops; what parts of it are favourable for the acting of cavalry, and what for infantry only.[1]

8. Much depends upon the knowledge previously obtained of the country, which is to be the seat of war. An obstacle overlooked may prove an impediment to the march of cavalry, or artillery, or even of large bodies of infantry; may derange a combined movement, nullify a projected simultaneous attack, and lead to the most disastrous results. Too much pains, therefore, cannot be taken in reconnoitring ground where the fate of nations is to be decided. To assist in these researches, it is prudent to take men belonging to the country, likely to possess, from their pursuits, perfect knowledge of its localities. The best guides, are, therefore, gamekeepers, foresters, shepherds, poachers, smugglers, and woodcutters. The greater number of these employed the better: they should be kept apart, and be examined separately; magistrates, too, must be examined, and made responsible for their answers.[2]

9. The information collected from spies is not, in most cases, completely trustworthy. In the first place, the men who undertake this duty are nearly always mercenary wretches, who will sell friend and foe alike, as best suits their own interests; in the second place, spies are seldom sufficiently acquainted with military matters not to exaggerate movements of slight importance and miss observing vital combinations. To test the accuracy of their reports intelligence is collected by means of reconnoitring officers, who, either alone or attended by a few troopers, get as close as they can to the enemy's posts; observe as far as possible, without the use of disguise and in full uniform, the positions of his troops; and, when discovered and pursued by his patrols, fight or ride to bring their intelligence safe home to their own outposts. Intelligence is also culled by every vidette and every advanced sentinel, but the reconnoitring officer is the main source.[3]

10. Jomini lays down the following as to the general means of procuring intelligence :—

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[1] Lieut.-Col. Basil Jackson. [2] Macaulay. [3] Hozier, Vol. I.

"(1) A general should neglect no means of gaining information of the enemy's movements, and, for this purpose, should make use of reconnaissances, spies, bodies of light troops commanded by capable officers, signals, and questioning deserters and prisoners.

"(2) By multiplying the means of obtaining information; for, no matter how imperfect and contradictory they may be, the truth may often be sifted from them.

"(3) Perfect reliance, should be placed on none of these means.

"(4) As it is impossible to obtain exact information by the methods mentioned, a general should never move without arranging several courses of action for himself, based upon probable hypotheses, that the relative situation of the armies enables him to make, and never losing sight of the principles of the art."[1]

11. Marmont says, on these matters: "Nothing should be neglected by which we may obtain exact information; and the surest method is always to be in contact with the enemy by means of light troops, frequently to have small engagements, and to make prisoners, whose answers are almost always simple and sincere. More is learned through them than by means of the most faithful spies. The latter often confound the names of corps and of generals, and form very inexact estimates of the strength of the troops, concerning whom they report. When two armies, by the combinations of war, find themselves suddenly in presence of each other, or have remained a long time at a certain distance from each other, it is important to be most positively assured of the situation of things; to this end, there are made what are called reconnaissances in force, (grandes reconnaissances). These operations demand much prudence, and even an especial foresight, particularly if we have not decided to fight, except under extraordinary and very advantageous circumstances.

"Cavalry should be principally employed; and, if possible, only cavalry and light artillery should be engaged, so that we may remain master of our movements. What is to be done is to tear away the curtain which conceals an army; and, when a general has been able to penetrate sufficiently to see with his own eyes the situation of the enemy, he has accomplished his purpose.

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[1] Jomini, Chap. VI., Art. 42.

"But he must make such dispositions as to sustain the troops engaged, and to receive them if they are hurried backwards. He should have quite within reach a respectable body of infantry; and in rear of that corps, the whole army should be drawn up for an immediate march, if circumstances require it, to take part in the action. A moment of delay might cause the loss of sudden opportunities, which, properly seized, give unexpected advantages."

12. The officer who has the command of a reconnoitring party, should be able to speak the language of the country, or, at least, have with him one or two men who can do so. Without this precaution, he will probably fail in his expedition, from his inability to question either the prisoners he may take or the inhabitants with whom he may meet. A good telescope is also more necessary on such an occasion than on any other; and, if he has not an accurate map of the district which he is to go over, he should obtain an outline sketch of it from the quartermaster-general's department. It would be an advantage, if, on these occasions, guides could be dispensed with; but this is a necessary evil, if he is not well acquainted with the country.[1]

13. * * To reconnoitre well requires not only a brave but a very able officer, with a quick eye, a ready memory, and a great knowledge of the indications which tell the presence of hostile troops, and allow an estimate to be formed of the force in which they are. Two Prussian officers of the staff of Prince Frederick Charles, the afternoon before the battle of Königgrätz, boldly approached the Austrian lines, observed the positions of the Austrian troops, and, though both pursued and assaulted by cavalry, got safe home, and brought to their general certain intelligence, which allowed him to frame the combinations that resulted in the morrow's victory. When the reconnoitring officer regains the shelter of his own outposts, he must either personally bring, or by some means send, his intelligence as quickly as possible to head-quarters.[2] * * *

14. * * The eyes of the Austrian army on more than one occasion during the campaign (1866) failed. Their patrol system was

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[1] Jervis. [2] Hozier, Vol. I.

very much inferior to that of the Prussians. Its inferiority seems to have been due to the want of military education among the officers to whom patrols were entrusted. In the Prussian army, special officers of high intelligence were always chosen to reconnoitre. Properly so, for the task is no easy one. An eye unskilled, or a mind untutored, can see little; where a tried observer detects important movements. A line of country, or a few led horses, will tell the officer who is accustomed to such duty, more than heavy columns or trains of artillery will disclose to the unthinking novice. The Prussian system never failed, never allowed a surprise. The Austrians were repeatedly surprised and taken unprepared.[1] * * *

15. When Wellington, before Badajos, heard that Marmont was approaching Ciudad Rodrigo, just captured from the French, he sent an officer to observe the movement. From a well-concealed point of observation, the envoy marked the march of the French, and, entering a town they had just quitted, found they had left the greater part of their scaling ladders behind. As their siege-train had been captured in Rodrigo, Wellington, who might else have been drawn northward for the defence of his acquisition, had no fears for the safety of the fortress, and remained to prosecute his immediate design.[2]

16. If an enemy is well protected by his outposts, there are few things more difficult than to discover his movements. The following account, by General Pelet, of the reconnaissance which preceded the battle of Essling, 21st May, 1809, will illustrate this position:—

"On the 21st May, between twelve and one o'clock in the morning, Marshal Massena reconnoitred the line of outposts. Various reports were made of a rear guard, from 4000 to 5000 strong, who were retreating. The marshal asked me what I thought of it. I answered, that, as I could perceive a glimmer along the horizon, extending about three miles, it must be the enemy's bivouac; and, that from the works carried on during the last three days, added to the cannonade of the previous evening, we had the whole of the enemy before us; but that it was easy to make certain of it from the steeple of Aspern. The marshal went up there, and, recognising the truth of my observations, returned to the Emperor. At daybreak the Emperor was on horseback. The marshals, around him, all disagreed as to the enemy's movements. Lannes considered there was only a rear guard of from 6000 to 8000 men, which ought to be at once overthrown. Bessières relied on the reports of his cavalry, who had assured him that nothing had been encountered for several leagues. Massena, who had acquired experience by a long command, was certain that the whole Austrian army was in his front, and Mouton agreed in this. Napoleon, anxious to satisfy himself, advanced beyond the ridge of Aspern; but he could get no further, owing to the enemy's light cavalry having approached since daylight. It was necessary to await the cavalry, before this mask could be penetrated. Reconnoitring his own position, Napoleon was passing continually between the outposts and the bridges. About one o'clock in the day, I was at the lines of the furthest outposts. Skirmishing began; the ground, rising gradually in front of me, concealed what was going on beyond. Suddenly, I saw three heavy masses directing their march on our left flank, and, as they crowned the ridge, forming order of battle. 30,000 men were advancing in an oblique line, towards Aspern, the key and support of the position. I at once went to warn the marshal of the approach of the columns, which in five minutes, would be upon him. He ordered me to send General Molitor to his support, and to announce the state of matters to the Emperor."[1]

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[1] Hozier, Vol. I.

[2] Hamley, Part VI., Chap. VI.

17. Reconnoitring parties are sent out on the front and flanks of an army, after a decisive engagement, to obtain information of the movements of the enemy, who, by a well concerted measure, may have succeeded in eluding the pursuit of the victors.[2] * * *

18. A reconnaissance of this kind having been carelessly made, after the battle of Austerlitz, was the cause of the French army making a false movement. The corps of Marshal Lannes, with the cavalry of reserve was supposed to be in retreat; nothing, however, was met with but his baggage and parks: the Allies had taken the road to Hungary through Goding; and all the orders had to be countermanded. A similar event took place after the battle of Ligny, 1815, but the consequences were very serious. It was only the next day, towards ten o'clock, that the reconnoitring parties fancied the Prussians had retreated

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[1] Jervis. [2] *Ibid.*

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to Namur, although this was not really the case: erroneous orders were consequently given, and it was discovered, a little later, that they had marched to Wavre; much precious time was lost, and Blucher joined the English at Waterloo.[1]

19. An army in retreat, should not neglect to send patrols upon its flanks, to give an account of the enemy's movements; but, if this duty is executed in a careless manner, the consequences may prove most fatal.[2] * * * * * * *

20. "In the reconnaissance of maritime coasts," the first object to examine is, the nature of the coasts; if they are open to view; if they are fit for landing: it is important to judge correctly and give a full account of all that which characterises accessible places, the dangers to which they lay open, and the means to overcome them. Coasts are high, or covered with rocks, which render them at first more or less dangerous, or there are cliffs, which, in supposing that they do not altogether prevent access, yet, render them very difficult. The promontories and headlands intended for the establishment of forts and batteries to defend the accessible points and the adjacent islands, serve as advanced works, which, when good measures are early taken, perplex always the attempts of the enemy.[3]

21. In reconnoitring a coast from the sea, the following points must be entered upon as minutely as possible. The most favourable positions for a force to land: they are generally to be found at points where rivers or streams flow into the sea; if none such exist, the next best are long, low promontories jutting out into the sea, of about a mile in width, so that the first division that landed should, in taking up a position to cover the disembarkation of the others, be able to rest its flanks on the sea, and so have the fire from the fleet to sweep across its front in case of attack. No place is good for the disembarkation of an army unless the depth of water and the configuration of the coast and general character of its slopes enables one to derive full advantage from the fire of the fleet; this must always be borne in mind when selecting a point for the purpose. All bays, inlets, and the mouths of rivers to be carefully examined, with this object in view; the best position to be taken up by the fleet to cover the landing to be noted on

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[1] Jervis. [2] *Ibid.* [3] Lallemand.

the sketch; the roads leading from the shore inland with distances to principal towns. Are there woods near, and what is their extent; are there any wharfs, and what are the facilities for constructing them; is there a dangerous surf, or can boats land at all times. What are the winds that render approach to the shore dangerous; is the anchorage good; is the bottom sand or rock; what is the height of the ordinary and spring tides; is good fresh water to be had in large quantities upon landing, and is it from wells, streams or tanks; what is the position and number of the enemy's forces in the neighbourhood. Soundings must be carefully taken, showing how near the different classes of vessels can approach. The prevailing winds and currents; is the coast bordered by downs; are there precipitous cliffs. If there is a beach, is it of mud or sand. In reporting upon a coast, with a defensive object in view, the points where landing can be effected, are to be minutely examined and sketched. All bays, coves and harbours to be surveyed, and reports made as to the best means of defending them; the nature of the tides; all islands, towns, villages, and houses on coast to be reported upon; all forts and other coast defences, the nature of their armament, capabilities of defence, their existing garrisons, and the strength of their garrisons should be for an effective defence. The best position for camps of observation, to guard against invasion, and what is the best scheme for the general defence of the coast.[1]

SECTION II.

ADVANCED GUARDS.

1. When an army is in column of march, it should have advanced guards, and flanking parties to examine well the country in front, to the right, and to the left, and always at such distance as to enable the main body to deploy into position.[2]

2. When an army marches from one camp to another, it is preceded by an advanced guard. Its flanks, when marching, are covered

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[1] Wolseley

[2] Napoleon.

according to circumstances, by a greater or lesser number of light troops, disposed with reference to the situation of the enemy. It is followed by a rear guard.[1]

3. The duty of an advanced guard does not consist in advancing or retiring, but in manœuvring. An advanced guard should be composed of light cavalry, supported by a reserve of heavy, and by battalions of infantry, supported also by artillery. An advanced guard should consist of picked troops, and the general officers, the officers, and the men, should be selected for their respective capabilities and knowledge. A corps, deficient in instruction, is only an embarrassment to an advanced guard.[2]

4. Light troops should be intelligently employed, and they should not be spared; for it is chiefly in this kind of service that they are useful: if they allow an army to be surprised, their commander has failed in his duties; he cannot allege a good excuse. It is especially in intersected and wooded countries, that precautions must be redoubled. Skirmishers, thrown out on both flanks, should be supported by detachments appointed for them to rally upon, and should be, moreover strong enough to defend, at need for some time, defiles which might afford to the enemy the means of turning the flank of the army.[3]

5. If an army is moving on a narrow front, one of its brigades or divisions, combined with cavalry and artillery, may form the advanced guard, extending across the whole front. * * * * * * * * * But where corps are moving each on its own roads, as at Solferino, each will form its own advanced guard: and these have generally consisted of from one-tenth to one-twentieth of the army or corps. * * * * *

A small party of horse precedes the main body, to obtain and bring the earliest intelligence. But of the main body the infantry should march first; for neither artillery nor cavalry should enter any defile which has not been first explored and its flanks secured, by infantry.

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The artillery may, in general, properly be placed next the leading battalion of the advanced guard. The flanks of the column should be covered to a distance of some hundred yards by parties of horse, and a chain of riflemen, at 40 or 50 paces from each other, should extend within the mounted troops.

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[1] Jarry. [2] Napoleon. [3] Marmont.

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In a halt of any duration, the advanced guard should form order of battle, and cover its fronts and flanks with advanced posts.

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The distance, then, must be such as to give the columns time to deploy sufficient force to meet any probable first attacks, and to cover the deployment of the rest. If an army be moving in numerous columns, at just intervals, it will need less preparation than when the roads refuse to lend themselves to any but deep columns, and too narrow or too extended fronts. Frederick's advanced guards observed a distance from the army of from 1½ to 3 miles; larger armies and less compact columns might extend it to 5 miles—nor should this be greatly exceeded, except in the single case that it was desired to seize on some point or position, the possession of which would be worth the risk.[1]

6. The aim being to gain intelligence of the enemy, and to be informed of his arrival as soon as he approaches, it is most useful to reconnoitre at the greatest possible distance, without, however, compromising the detachments. The advanced guard of an army which is not in presence of the enemy, ought at least to be a day's march from the main body; and that of a division several hours in advance.[2]

7 When we are at a distance from an enemy, who is strong enough to offer us battle, and are marching towards him, we should occupy by advanced guards and light troops, at least the space of a day's march distance around us, so as to be informed of his movements and modify our own in consequence.[3]

8. If a body of troops were to remain drawn up to oppose the advance of a superior force, on a plain, where the whole formation was visible, the attempt would be futile and disastrous. The enemy would at once attack with superior force, and compel a costly retreat under penalty of route or destruction. But skilfully disposed, in a good position, across the path of an adversary advancing in an ordinarily broken and difficult country, the risk is greatly reduced. If the armies have been manœuvring near each other, with numbers and positions

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[1] Hamley, Part VI., Chap. VI. [2] Marmont. [3] *Ibid.*

constantly changing, and plans and combinations only to be guessed at, the leader who comes on such an obstacle in his path cannot, at first, know the amount of force which bars his way, sufficiently well to begin an immediate battle. He will generally pause, reconnoitre, and feel his way; and will defer a general attack till he shall be ready to deploy a force sufficient to render him confident of success. In the meanwhile, the commander of the smaller force must watch carefully the dispositions of his adversary, and combine, in an unusual degree, resolution with prudence. For if he were to engage the whole of his troops, throughout the extent of their front, it would be out of his power to withdraw when the adversary had deployed a superior force, and he would be outflanked and heavily defeated. On the other hand, if he were to give way before the enemy had made a considerable deployment, the advance, which it was his business to check, would not be retarded. He must occupy his ground to the last moment possible without committing himself to a general action, and must then effect an orderly retreat. At the first opportunity offered by the ground, he must repeat the manœuvre. Meanwhile the adversary will have again formed order of march, and, on approaching him, must once more form for battle, with more or less promptitude in proportion to the confidence he may feel that the obstructing force is still inferior to him. In this way the day's march, which, if unopposed, might have stretched to twenty miles, may be reduced to six or three; and time may thus be gained for employing to decisive advantage the rest of that army which uses the retarding force.[1]

9. 'In the German war of 1866,'—orders were sent to the commanders of the corps* at Trautenau and Skalitz, not to compromise themselves in a serious action, but to retreat slowly, if pressed by superior numbers. These orders were neglected. If they had been observed, it is doubtful whether the Crown Prince would not have pushed them back, and concentrated his army on the Austrian communications, before Benedek had time to strike down Prince Frederick Charles, and return with his main force to support his troops in front of the second army. The result of the neglect of the orders of the

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* Austrian.

[1] Hamley, Part IV., Chap. I.

Commander-in-chief was, however, that the three Austrian corps engaged on the 28th near Josephstadt, were severely mutilated for further operations.[1]

Progress of the French, on the 15th June, retarded by Zieten's advanced corps.

10. At the commencement of the Waterloo campaign, * * Zieten's corps occupied the line of the Sambre, covering the road from Charleroi to Brussels; and when Napoleon advanced, it was the business of Zieten to oppose the progress of the French until Blucher and Wellington could concentrate their forces behind him.[2]

11. Reille had defiled across the river and taken post half-way between Marchiennes and Gosselies, when Napoleon made his own way out of Charleroi. At this time about 10,000 of Zieten's troops were towards Gosselies under General Steinmetz, the rest retiring in the direction of Fleurus, but showing a good front. It needed a considerable deployment of Reille's troops in front of Gosselies before the Prussians there were dislodged and retired across on Fleurus, leaving the road to Quatre Bras open. Napoleon himself had to take command in a more severe combat on the Sombreffe-road along which Vandamme and Grouchy were directed; for they had hesitated to act in his absence against Zieten, whose rear guard fronted them boldly half-way between Charleroi and Fleurus. He had been unwilling to ride on to that side until he knew that Reille was able to occupy Gosselies and secure his left, and thus the French had lost two hours more. Thanks to their mistakes and his own firmness, Zieten, though unsupported, actually held possession of Fleurus at dark, keeping some wood to the south of it with his advance guard, but having his corps mostly on the other side, nearer to the Namur-Nivelles road, where he occupied the heights about the village of Bry, since known as the hill of Ligny.[3]

12. No satisfactory explanation has been ever given of the reasons of 'Zieten's' allowing the bridges, which were left on his flanks as he quitted Charleroi, to fall into the enemy's hands unmined and without

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[1] Hozier, Vol. I. [2] Hamley, Part IV., Chap. I. [3] Chesney, Lect. III.

resistance. The information which he himself sent off to the Allied generals proves clearly that he was not blind to the coming danger, and it does not appear why he took so little pains to prepare for it.

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Zieten's deliberate retreat on Fleurus and Ligny, the masterly way in which he collected his scattered corps during the movement, and the fine front with which he held back Vandamme before the former place, have long attracted the admiration of military critics.[1]

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[1] Chesney, Lect. III.

CHAPTER IV.

ADVANCED POSTS; OUTPOSTS.

1. To reconnoitre accurately fords and defiles of every description; to provide guides that may be depended upon; to interrogate the curé and post-master; to establish rapidly a good understanding with the inhabitants; to send out spies, to intercept public and private letters; to translate and analyse their contents: in a word, to be able to answer every question of the general-in-chief when he arrives at the head of the army:—these are the qualities which distinguish a good general of advanced posts.[1]

2. The safety of an army, and the success of the measures taken to insure the operations, depend chiefly on the vigilance of advanced posts; the officers commanding them should, therefore, never forget, that, on the one hand, they are intended to form an impenetrable curtain, behind which the army should be able to execute all its movements, without their being either discovered or suspected by the enemy; and that, on the other hand they should endeavour to find out every movement of the enemy. The distance at which advanced posts should be from the corps they are intended to protect, depends on the nature of the country and the position occupied by the enemy; one principle, however, is necessary to be observed, which is, that the main corps should have time to prepare against any attack of the enemy: thus, in open countries, the advanced posts are placed at from 2000 to 3000 yards, but in hilly countries, at a much shorter distance; besides, there are many positions sufficiently strong in themselves to allow of the army, occupying them, not pushing forward its advanced posts to a distance. When the army is on the march, the advanced posts are furnished by the advance and rear guards of each column; but when the army is in position, the advance and rear guards usually then re-occupying their place in the army, the advanced posts are furnished by the troops which form the first line.[2]

3. Outposts have a double object; to watch over the safety of the army, and to observe the movements of the enemy. When a corps

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[1] Napoleon. [2] Jervis.

forms the advanced guard of an army, then the chain of outposts is formed in front of that corps; but where there is no advance guard, the chain of posts is established immediately in front of the position which the army has taken up.[1]

4. Until the advanced posts are properly placed the whole army remains under arms; the men for the grand guards are told off, receive provisions and forage, and are then posted; the detachments which protected the reconnaissances then join their several corps, and the army is permitted to repose. Such is the regular system of placing the advanced posts, but it is often deviated from, as the fatigue of the troops and their distances from the enemy lead to inattention in these necessary precautions, the neglect of which is so often dearly paid for.[2]

5. Outposts must be so placed that every movement more particularly an advance on the part of the enemy, shall be at once detected; that nothing can pass unobserved between them into their own camp; and that they can hold their ground sufficiently long against an enemy, to prevent their troops from being taking by surprise. The troops on outpost duty are disposed of according to the different parts they have to act, namely, those who watch the enemy, and those who in case of an attack endeavour to stop him. The first called videttes, are pushed forward to a post whence they can overlook all roads leading from the enemy's side; they are supported by a non-commissioned officer's post, and by the outlying picket, who are supported in their turn by the reserves. Time is the great object to gain when out-posts are attacked, consequently the reserves should be sufficiently strong to hold the enemy in check and cover the approaches to camp.[3]

6. Outposts should be placed so as to discover everything going on around them without being seen themselves; they are, therefore usually posted upon heights, and are protected from observation by every available obstacle, such as hedges, walls, houses, clumps of trees, &c. If possible, they should not be placed in a village, as the soldiers would then be likely to stray from their posts; neither should they ever be placed opposite obstacles that are near enough to them to protect a surprise; if there be a village, a wood, or a field with high standing crops, and sentries cannot be placed beyond, it would be more prudent to station the outpost at some distance; for, however strict a watch

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[1] Nolan. [2] Jervis. [3] Nolan.

may be kept, the post will always be much exposed, and the videttes placed near the obstacles, may be suddenly attacked. This was one of the principal causes which led to the defeat of the French army near the Bidassoa, 7th October, 1813.[1]

7. It is of great advantage to an army in the field, to push its advanced posts as far forward as it can with safety, in order to cover as much of the country and its resources as possible, to have longer and more precise warning of any movement of the enemy, and to impede his reconnaissances and proceedings generally. It is of still more importance to restrict the enemy to the narrowest limits. Under ordinary circumstances, midway between the respective forces may be considered a reasonable line of demarkation that each ought to insist upon; but several circumstances may give a superior power to one side.

(1) The opposing armies may be very unequal in force, or one may have gained a marked ascendency over the other; in which case, the superior will be able to press the inferior into smaller limits.

(2) One may hold some peculiarly strong, defensible, detached post or batteries in a salient position, that may give him a command over the neighbouring ground; in which case, the line of demarkation will be midway between those posts and the position of the other army.

(3) There may be a river not fordable, or other essential obstacle between the two, which will naturally form the line of demarkation, although nearer to one than the other.

Subject to those sort of contingencies, it is very essential that no encroachment should be allowed; the greatest efforts, in particular, should be made to prevent an enemy from holding posts, or even temporary possession of the foot of the heights on which parts of an army are posted; distant fire of artillery is not sufficient to justify submitting to this disadvantage; and if the enemy's circumstances are such as really to enable him to enforce it, the army which is subject to it must be in a very insecure position.[2]

8. When the enemy is near, it is necessary that the advanced posts exercise the greatest vigilance, that numerous patrols may be constantly in movement; that these patrols may take notice of the least noise, and

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[1] Jervis. [2] Sir J. F. Burgoyne.

that they redouble their activity. The advanced posts, to the right and left of the position, ought to cover themselves by frequent patrols, watching particularly the roads which lead to their posts. The patrols, that the posts from the centre send out, should be composed of a very small number of men; but, they should not the less, approach as close as possible to the posts of the enemy, in order so to overlook them that the least movement which they may make, must be known. The men on picket, ought not to quit their arms, and the advance guard itself, should be ready to act at the shortest notice.[1]

9. When troops encamp for any length of time in one place, in addition to the common measures of security which are always adopted, they strengthen their outposts by abattis, redoubts, &c., and their chains of outposts by fortifying farm houses, barricading villages, bridges, defiles, and in other ways render all possible approaches to the camp both difficult and dangerous. The outposts are under the command of some one specially appointed for this service, and to him all reports are made, and from him all orders received and carried out.[2]

10. It is no less essential, in order to avoid a surprise, that the videttes should be protected by some obstacle which would prevent the enemy from bearing down upon them with too much rapidity. To effect this, stone bridges should be barricaded; wooden ones have their planks sawn through; defiles should be choked up; and this is promptly effected by means of waggons, ladders, trees half sawn through, empty barrels, &c.[3]

11. 'In 1813, during the Peninsula war, at the attack on an advanced guard of the Allies,' the heights occupied * although rugged, rose gradually from the magnificent bridge 'of Ordal,' by which the main road was carried over a very deep and impracticable ravine. The second battalion of the 27th British regiment was posted on the right, the Germans and De Roll's Swiss, with the artillery, defended an old Spanish fort commanding the main road; the Spaniards were in the centre, the Calabrese on the left, and the cavalry were in reserve. A bright moonlight facilitated the movements of the French, and a little before midnight their leading column, under General Mesclop, passing the bridge without let or hindrance, mounted

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[1] Lallemand. [2] Nolan. [3] Jervis.

the heights with a rapid pace, and driving back the pickets, gave the first alarm. The allied troops, lying on their arms in order of battle, were ready instantly, and the fight commenced.

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* * A commander who understood his business, would have blocked up the bridge in front of the heights, and defended it by a strong detachment, supporting that detachment by others placed in succession on the heights behind, but keeping his main body always in hand, ready either to fall on the head of the enemy's column of attack, or to rally the advanced detachments and retreat in order. There were plenty of trees and stones to block the bridge; its own parapet would have supplied materials, and the ravine was so deep and rugged that the enemy could not have crossed it on the flanks in the dark.[1]

12. When your rear is protected by natural obstacles, then the chain of outposts should extend well to both flanks; when the flanks are open, then you must protect them by strong pickets, and send out parties of cavalry to scour the country on both sides. The distance of the outposts is also entirely dependent on the strength of the main body and the peculiarities of the ground. The weaker the main body, the less strong its outposts, and consequently the nearer to camp; otherwise the pickets might be destroyed before they could effect their retreat. Armies or corps push forward their outposts, sometimes six or eight miles; and this distance diminishes in proportion with divisions, brigades, regiments, &c. Where videttes, for instance, are four miles from the camp, their reserves should be half way between the two, that is, at two miles; the outlying pickets half way between them and the videttes, viz., one mile; and the non-commissioned officer's post half way between the picket and the videttes. These distances diminish, as already stated, according to the strength of the detachments. With small bodies of troops, the number detached for outpost duty is generally in the proportion of from one-third to one-fourth of their strength, with large bodies of troops, a fifth or sixth only.[2]

13. A vidette has an evident advantage over a sentry; from his elevated position he can see further, and the swiftness of his horse

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[1] Napier, Vol. VI. [2] Nolan.

enables him to escape from danger, and give information sooner. They should be relieved every two hours, and oftener if the weather be cold, or the men be new levies, or the enemy be supposed to be in the neighbourhood. The distance of videttes from the outposts, is generally from 400 to 500 yards; their distance, therefore, from the main guards is from 800 to 1000 yards. The reason why they are placed at these distances is:—

(1) Because the men can with difficulty see further, even in fine weather.

(2) To afford time for the main guard to advance to the support of its outposts, if these are attacked.[1]

14. If the outposts are too far from the main body, there is the danger of their being destroyed before they can be supported; while, on the other hand, if they are too near the main body, the latter might not have time, in the event of a sudden attack, to get under arms. In an average country, the furthest infantry outpost may perhaps be three quarters of a mile from the main body.[2]

15. Advanced posts, having reached their ground, in order to keep the communication with one another, and for their own safety, push forward outposts; and, lest these outposts should by any chance be suddenly driven back to the main body, they are supported by advanced pickets. Sometimes the advanced posts themselves are supported by strong bodies of troops, which either march to their support, or upon which they can fall back. These are usually posted by night only; but, if circumstances do not allow of these posts of support, their place is supplied by a picket, which remains with the main body of the army, and is ready to march at the first signal.[3]

16. * * The enemy will have to break through four lines of defence before reaching the main corps; viz., videttes, out-posts, advanced pickets, and the main guards; sometimes there will be a fifth post of support. The officer commanding an advanced post, should obtain all the information he can about the communications of his outpost, whether with the neighbouring ones or with the enemy; he should reconnoitre the position which is to be occupied at night, and

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[1] Jervis. [2] W. C. E. Napier. [3] Jervis.

its places for watering, as well as the roads to be made use of by the patrols; he should rectify the position of the videttes and outposts; if requisite, examine the disadvantages and advantages of the neighbouring country, in case of defence or attack, and consider how he would effect his retreat, if necessary. Similar reconnaissances should be made by the officers under him.[1]

17. The nature of the country has much to do with the number of men employed. In open ground few videttes can see a long way. In intersected country, where gardens, thickets, rows of trees, heights, and other obstacles intercept the view, both videttes and pickets must be placed closer together, and therefore require to be more numerous. Cavalry forming a chain of outposts in an open country, can place videttes by day at from 600 to 1000 paces, for they can see each other at that distance, and also hear a shot fired. A regiment of 300 horses on outpost duty, would keep 100 horses in reserve, 100 form the support, 100 the line of outposts, of which 50 form the outlying picket; the remaining 50 are detached as a post, from which sixteen videttes are supplied as the chain. These at 700 paces from each other, enable you to cover 11,200 paces of ground, or about six miles; equal to what it is calculated to require 1000 infantry soldiers to do. But all these things depend so much on circumstances, that no exact rules can be laid down, and much must always be left to the good sense of the officer in command. Thus cavalry videttes may be placed sometimes at greater distances, and with good effect: whereas infantry videttes are generally at 100 yards, and sometimes, in a close country, they are drawn together to within 40 or 50 yards of each other. Both must, of course, lessen their circle and draw closer together at night. In a fog, videttes are taken off the heights and drawn closer together, much in the same way as at night.[2]

18. The detachments forming the advanced posts, should always take their rations with them; but if this cannot be done, the greatest precaution should be taken when foraging. The commander of an outpost should watch everything that goes on, and allow no one to come or go unquestioned; the videttes should frequently be visited both by him and those under him. Videttes should watch every movement

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[1] Jervis [2] Nolan

of the enemy; observe the number of his videttes and sentries, the road taken by his relieving parties, the strength of his patrols, the time of day when the patrols are made, any dust rising behind a hill or village occupied by the enemy, the usual hour when the trumpets or drums are heard; whether the enemy's generals have been seen along his line of videttes, &c. When relieved, they should make a patrol before joining the main guard; for the oftener patrols are made, the greater will be the security. Videttes should not allow any one, either coming from or going towards the enemy, to pass their post without a pass. Sutlers should on no account be allowed near an advanced post, as they are frequently nothing but spies. All persons endeavouring to pass the videttes by stealth, or who refuse to stop when called upon to do so, should be fired at: if they are taken prisoners, they should be detained by the vidette, until he is relieved, and then sent on to the main guard.[1]

19. Troops for outpost duty are selected according to the nature of the ground: with an army they are generally composed of light troops of all arms—viz., horse artillery, light cavalry, and light infantry. In an intersected country the infantry is chiefly used; in an open country the cavalry. In both, the cavalry furnishes patrols to the front and flanks, and generally occupies the high roads. The cavalry pushes videttes forward beyond the infantry chain, for these can gallop back, whereas infantry soldiers might be cut off and made prisoners. The reserves should be composed of infantry, cavalry and artillery; how far the chain of outposts should extend depends upon the strength of the army, the nature of the country, and other circumstances.[2]

20, In fixing the position of the chain, care must be taken to comprise within it, as far as possible, the heights whence the camp might be overlooked, its strength, extent, and arrangements ascertained, and what is going on in it be seen. If the chain cannot conveniently be extended so far, a separate detachment must, if possible, be placed on such height, the necessary precautions for supporting it and securing its retreat being observed. It is disadvantageous to carry the chain through a wood; the posts should as much as possible be placed on the outer edge which faces the enemy; and if, from the extent of the forest or wood, this cannot be done without increasing too much the number of posts, or weakening the chain, the pickets should then, if possible be placed across the wood along a high road or the course of a stream or valley, which will enable the pickets to see better to their front. If the inside of the wood is very thick, without roads or streams running in the direction of the chain, the wood must be left in front, keeping it a little beyond musket-shot, and establishing within the wood and on the roads inside it small posts of infantry, or patroling parties, to give notice of the enemy's approach both by day and by night. If the chain were carried through a thick wood where the sentries could neither see nor stop spies and deserters, the first principle of outpost duty would be violated. It is therefore better in such a case to leave the wood in one's front. It might, however, happen that the skirt of the wood was too near the camp; it would then be indispensable to cross it with the chain, either by quickly constructing an abattis, or by multiplying the infantry posts as much as is necessary.[1]

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[1] Jervis. [2] Nolan.

21. The great principle to be observed in placing a chain of outposts is, that every vidette, sentry, and picket, should be able to see and communicate with the next vidette, sentry, or picket on either side; and that, while they should be able to observe the movements of the enemy, they should themselves be as little seen by him as possible. But this, like many other very good general rules, is easier laid down than followed. At night it is usual to draw in the chain of outposts, nearer to the main body; but whether this be done or not, redoubled vigilance from all is then required, and all sentries or posts which during the day may have been placed on the top of hills, should be withdrawn and posted on lower ground, whence they can more readily discover the enemy against the sky line, should he advance, while they are themselves more screened from observation.[2]

22. When the chain, for some reason or other, extends beyond the distance where, in the event of attack, the pickets could be easily supported by the troops in camp, the most distant points are supported by bodies of infantry or cavalry intermediately encamped, and conveniently placed either with respect to this object or with reference to the ground on which they are to act. In other cases it happens that

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[1] Jarry. [2] W. C. E. Napier.

outlying parties are pushed beyond the chain, to a greater or lesser distance, whose duty it is to watch the movements of the enemy and to gain the earliest intelligence of them. But these irregular arrangements are not included in those of the chain, of which every portion should be united and joined together, so as to form a line impenetrable to spies and deserters, and capable of preventing the enemy from reconnoitring.[1]

23. The positions of the first and second corps 'of the Prussian army in the Waterloo campaign' along the Sambre, enabled their outposts of cavalry to watch the line of frontier from Bonne Esperance, their western-most point, to the Meuse. Thielemann continued the chain along the edge of the Ardennes about Dinant, his head-quarters having been advanced into the forest to enable him to guard the portion of it near that town, which is exceptionally open and easy to traverse.[2]

24. Outposts established to watch a river, should obtain information about all the fords which may be passable at high or low water, and the boats should be collected together and carefully guarded. If the Austrians, who defended the bridge of Laufen, on the Solga, in 1800, had paid attention to this, three Frenchmen would not have swam across this river and taken a small barge, by means of which a whole battalion crossed the river, and falling upon the rear of the Austrians, obliged them to retire with considerable loss. The passage which the Duke of Wellington made, in 1809, of the Douro, was also owing to a small boat having evaded the French patrols, and crossed, during the night, to the opposite bank; it was at once seized by the British, and three persons crossing in it, returned in half an hour with some large barges, in which troops were sent across to effect a lodgment.[3]

25. When the cavalry pickets are on the bank of a river, or stream, or marsh, the fords and the nature of the bottom must be carefully examined. If the stream or the marsh is fordable at all points, the cavalry pickets generally withdraw at night to the posts which have been pointed out to them. If the stream can only be crossed by certain roads or paths, these must be ascertained, in order to place videttes opposite these places of passage. In such circumstances the pickets

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[1] Jarry. [2] Chesney, Lect. III. [3] Jervis.

occupy the same posts during the night, and the videttes, as soon as it is dark, approach quite close to the places of passage. If the bridge is a wooden one, the planks are removed, but in such a way that they can be replaced if necessary. If the banks of the river are very much enclosed and its bed is not fordable, it would be better to place infantry pickets opposite the passages, rather than cavalry; and these infantry pickets should intrench themselves according to local circumstances. If the stream were passable in too many places, with an open plain in rear, it should be watched by cavalry; but then the videttes during the day should keep out of musket-shot from the bank of the river.[1]

26. If the enemy is near, no fires are to be lighted. As soon as the videttes can no longer see each other distinctly, it is time to take up a position for the night. Do not post videttes near rushing water, mills, or near anything where there is a noise; for by night they must depend upon their sense of hearing more than their sight. When near the enemy part of the post and picket must be mounted, the mounted men being pushed forward to give the dismounted ones time to get on their horses if attacked. At night, the videttes should be relieved every hour. They are close to the posts, and this can be easily done; the reliefs close round do the duty of patrols at the same time. When any part of a picket or post is mounted, no dismounted sentry is required in their front. Videttes are taken off the hills or heights, and placed on the roads behind fords, bridges, or ravines. In clear moonshine they should be concealed in the shadow of a tree or bush. If they hear a suspicious noise, one vidette rides in and reports it; no one, whether deserter or otherwise, is allowed to approach too close at night, but is ordered to dismount and wait till the relief or patrol comes round. If attacked and driven in, the videttes must not retire straight to their post, but some hundred yards to the right or left of it. The posts and pickets have thus time to attack the enemy's flank or rear. Do not skirmish by night, but hold every defensible position, and fire as much as possible to alarm the camp.[2]

27. In proportion as the night is dark and the weather stormy the sentries must be drawn nearer to each other on the circumference of the chain round the main picket during the night. When it is very dark,

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[1] Jarry

[2] Nolan

and the wind or the rain prevents one from hearing the approach of anything coming from the enemy's side, the double sentries will perform the duties of moveable sentries—that is, while one remains steady at his post the other will move to his right till he is near enough to see the first fixed sentry on his right; after which he will return to his post by the same way. On the return of this sentry the one which had remained at the post will in his turn move towards the first fixed sentry on his left. In this way each sentry will alternately act as moveable sentry between his post and that of the next sentries. The drawing in of the sentries round the pickets during the night and the abandonment of the heights which were occupied during the day, must leave greater or less intervals between two pickets where there are no other fixed posts but those employed in defending the roads to the right and left of the picket; and it must not be forgotten that as the picket has been placed by the superior officer of the day who formed the chain, upon the main road which the enemy would take in order to march on the camp at this part of the chain, it might happen that there was no other road to defend in the extent of the post, and that the whole night duty between two pickets has to be done by the lateral patrols. In such a case the patrols shonld succeed each other continually; and in cases of uneasiness the return of one patrol should not always be waited for before another is sent out.[1]

28. The general custom is for the new pickets to proceed at daylight to the support of those that they are to relieve on the chain of outposts, because it is, as has been said, about this time of day that the outposts are attacked when the enemy has formed any design. As it has sometimes happened that a picket has been carried off in silence during the night, from having neglected some necessary precaution, the new picket should approach softly and with precaution, and should halt at four hundred paces or thereabouts from the post it is about to relieve; the small advance guard which should precede it will advance, feeling the ground, as far as the first sentry. This examination of the ground being made, the new picket will advance as far as the sentry, where it will halt till it has, in its turn, been reconnoitred by the old picket, which will stand to its arms if it has not already done so; * *

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[1] Jarry.

* * The officer of the old picket will then give the relieving officer every information respecting the post; subsequently the same number of detached posts and sentries will be furnished by the new picket.[1]

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[1] Jarry.

CHAPTER V.

Section I.

ATTACK OF POSTS.

1. Temporary works may be attacked by surprise or by open force, and it will be necessary to obtain accurate information on several essential points before a decision can be made as to which mode will be the most judicious or practicable under the circumstances. For instance, previous to making any dispositions for an attack, either of a village, an intrenchment, or a smaller military post, a commander should have some knowledge of the locale, the nature of the defences, and the strength of the force occupying them. It should be ascertained whether they are left to fight their own battle, or are in a situation to receive support, and from whence that support is to come, how the duty is done, what is the nature of the ground around it, whether favourable for concealment or otherwise, which are the shortest and best roads to it, &c., &c. If an intrenched village is to be attacked, it should be ascertained by what means the streets and roads leading into it have been closed, whether by stockades or breastworks, how these obstacles are flanked, whether from neighbouring houses or temporary works thrown up for the purpose; what obstructions are placed in front of them, whether abattis, *trous de loup;* how the houses forming points in the main enclosure have been strengthened, whether there is a keep and of what nature it is, and how fortified; whether there is any building occupied on the outside as an advanced post, where the pickets are placed, &c. If the post is an isolated building, such as a country house or church, attention should be directed to the mode in which the doors have been barricaded, or the windows blocked up; how the loopholes are arranged, what sort of flank defence has been obtained, how it can best be approached, what internal preparations have been made for prolonging the defence, &c. Part of this 'useful knowledge' may be drawn from spies, deserters, and maps, not however trusting any of them much further than they can be seen or verified; and for the rest, there is nothing comparable to seeing for one's self, and therefore

either an open reconnaissance, or a secret peep, must somehow or other be obtained.[1]

2. It will be obvious, that where it is practicable, several real attacks, or one leviathan and several false ones, will distract an enemy's attention, divide his forces, tend to disturb him and shake his confidence, render his combinations more perplexing, and, in short, give him more to attend to, with diminished means of doing it, than if one attack only were made. It is usual, therefore, where circumstances permit, to attack several points at the same moment, or in quick succession. To effect this, the columns are formed under the nearest cover that can be found, from which they advance with as much celerity as will leave the men fresh when they get to work. To regulate even this properly is a point of no small importance; for instance, if a column has any considerable distance to move, in the face of a smart peppering fire, and they start at too great a pace, they may be brought to a stand still before they can close with their opponents, and that too when the fire upon them, from its diminished distance, is the more deadly. The means of moving powerfully and swiftly at the last, must be preserved at all events.[2]

3. Circumstances will arise when an undisguised attack in broad daylight may be imposed. There is, of course, more previous exposure, but people see what they have to do, and can, therefore, act with more decisive effect. In the preparatory movements, and during the advance of the column, violence must in this mode of attack control opposition, instead of its effects being eluded by secrecy or concealment. The employment of light troops and artillery are the chief means which may be applied by the assailants for effecting this object; the former can act as a firing party in covering the advance, but it is quite necessary there should be light enough, in order to derive all the benefits which the latter can bestow. Artillery can effect that from a distance, which without it infantry would have to execute for themselves, under all the disadvantages of a close fire. Thus by firing in a slanting direction at stockade work, an abattis, or palisading, these obstacles become so damaged and torn up, that a passage improved by the use of the axe is readily effected through them. Barriers may be knocked away from

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[1] (Aide Mémoire), J. J.

[2] *Ibid.*

doors or windows; walls may be breached, or the defenders in a building may be very much incommoded by its effects; for shot will go through and through ordinary houses and if a lively fire is kept up they soon cease to be comfortable quarters.[1]

4. If the attack is by open force and the abattis should prove impenetrable, there is no harm in making the attempt to set it on fire. A few resolute fellows, carrying small fagots, which have been previously dipped in pitch, and each man provided with a 'lighted port-fire,' if it is daytime, or if they can approach unseen by night, with some other means of setting fire to them, must rush up from some neighbouring place of concealment, covered by a smart fire of musketry, and throwing in their lighted fagots, all will soon be in a blaze. When that has subsided, and there is no fear of the men's pouches being exploded, the breach will be practicable, without waiting for the hot cinders to cool. This little conflagration would go on under the protection of a party, near enough to prevent any attempt on the part of the defenders to extinguish it. If, however, an abattis is formed of small materials, or if sufficient precautions have not been taken to secure it in its place (that is, if it is a bad one), it will be a waste of time to submit to the delay of burning it; in such a case, a party rushing up with ropes, may tie them to some principal trees; or a big hook fixed to a rope or pole may be used, and a tree or two may by these means be dragged forcibly out of the line; or some handy fellows with good tools may partially open it, by cutting away a few of the small branches, so as to let men get through at open order.[2]

5. Small ditches may be filled up with fagots or bundles of hay,—*chevaux-de-frise* may be displaced by main force, with a rope and a good pull altogether,—or they may be cut up, or blown to pieces with a bag of powder; palisades, or fraises in a ditch, may be got rid of in a similar manner,—or if a party is provided with ladders or planks, and the ditches are narrow, these last obstructions will frequently offer facilities for constructing temporary bridges for passing over them. Stockade work or palisading may be escaladed with ladders brought up in a line under the protection of a firing party, and carried by two or four men, according to their length. The ladders would be planted

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[1] (Aide Mémoire), J. J.

[2] *Ibid.*

together as they conveniently could be, and the assailants would meet them on as extended a front as their numbers permittted; or a stockade may be breached by the explosion of a bag of powder &c.[1]

6. In the attack of gateways or houses, if secrecy is preserved till you get close to them, it is as much as can be expected. In order to force the barriers or doors, the most effectual agent is a bag of gunpowder. A bag containing from 20 to 30 or 40 lbs., according to the expected strength of the obstacle, and furnished with a fuze for firing it, and a loop to hang it by, can be easily nailed or hooked up against a pair of gates, or fastened to a barricaded door. If it can be done without previous discovery, so much the better; and for effecting this, a gimlet will be found a very useful, quiet operator. When fixed, the fuse is lighted, and the man retires a little.[2]

7. In the attack of a village, or even a smaller post, the moment an entry is made, a portion of the force should be detached to endeavour to communicate with the other attacks, if there were any; and leaving a party in reserve at the point where they came in, they should secretly march, if the alarm had not been given, to secure the guards and principal avenues into the village. By thus gaining possession of the barricades or gates, they would be enabled to open a communication, by which a portion of the reserve, which should have been previously held in readiness, might enter. If they were discovered, and the garrison were assembling to oppose them, the same measures would be of advantage, and no time should be lost, in also making a furious attack on the main body wherever it might be forming, taking care, during the advance, to secure the means of an orderly retreat. The value of local knowledge, indeed its absolute necessity, is again apparent, for how could any of these steps be taken with the promptness befitting the occasion if this were wanting?[3]

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[1] (Aide Memoire), J. J. [2] *Ibid.* [3] *Ibid.*

Section II.

DEFENCE OF POSTS.

1. If a building forms part of a general line of defence, or is in the contour of the works round a town or village, the front and sides only may require being prepared for defence, for a force must not be shut up without a special object; if, on the contrary, it is an independent post, to be defended to the last, and open to attack on all sides, every point must be equally looked to, and the means of retreat and of reinforcing it must be preserved, if considered necessary under the circumstances.[1]

2. A building proper for defensive purposes, should possess some or all of the following requisites.

(1) It should *command* all that surrounds it.

(2) Should be *substantial*, and of a nature to furnish materials useful for placing it in a state of defence.

(3) Should be of an *extent proportioned to the number of defenders*, and only require the *time and means* which can be devoted to completing it.

(4) Should have walls and projections, that mutually *flank* each other.

(5) Should be *difficult of access* on the side exposed to attack, and yet have a *safe retreat* for the defenders.

(6) And be in a situation proper for fulfilling the object for which the detachment is to be posted.

A church will be found more usually to unite all these good properties, than any other building. It may be remarked, that though good strong walls are an advantage, yet their thickness should be limited to two or three feet, from the difficulty there would be in piercing loopholes; unless when they are likely to be battered by artillery, in which case the musketry must be confined to the windows, and the more solid the walls are, the better. It should also be remembered that brick houses and walls are preferable, on several accounts, to those built of stone; for when exposed to artillery, a round shot merely makes a small hole in the former, but stone is broken up in large masses, and dangerous splinters fly from it in all directions. It is much easier also to make loopholes through brickwork than through masonry. Wooden houses, or those made of plaster, are to be avoided, for the facility with which an enemy can set fire to them, and they are frequently not even musket-proof. Thatched houses are equally objectionable on account of fire, unless there is time to unroof them; and after all it must not be forgotten that earthen works, when exposed to artillery are to be preferred to houses, as far as affording security to the defenders is concerned. In seeking this security, however, it should be borne in mind that they are not so *defensible;* for troops cannot be run into a house, but they are not exempt from such an intrusion in an earthern work of the nature under discussion. The two together can be made to form a more respectable post than *either* can be made into singly, for the merits of both will be enhanced, and the defects be modified, by the union. A building is therefore at all times a capital base to go to work upon. The walls may be partially protected from cannon-shot by throwing up earthern parapets round it, and the house may 'reciprocate' by acting the part of a keep, and afford the garrison a place of refuge in which they may either defend themselves with advantage, or, if it 'suits their book,' resume the offensive, and drive the assailants out again.[1]

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[1] (Aide Mémoire), J. J.

3. Should there exist any doubt about having sufficient time to complete all that might be wished, it would become matter for consideration what were the points which it would be of the greatest importance to secure first, so as to be in a condition to repel an *immediate* attack, because such points would naturally claim attention to the exclusion of all others. In such a case, it might be well to employ as many men as could work without hindering each other by being too crowded:

(1) To collect materials and barricade the doors and windows on the ground floor, to make loopholes in them, and level any obstruction

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[1] (Aide-Mémoire), J. J.

outside that would give cover to the enemy, or materially facilitate the attack.

(2) To sink ditches opposite the doors on the outside, and arrange loopholes in the windows of the upper story.

(3) To make loopholes through the walls generally, attending first to the most exposed parts, and to break communications through all the party-walls and partitions.

(4) To place abattis or any feasible obstructions on the outside, and to improve the defence of the post, by the construction of tambours, &c.

(5) To place out-buildings and garden walls in a state of defence, and establish communications between them. To make arrangements, in the lower story, especially for defending one room or portion one after another, so that partial possession only could be obtained on a sudden rush being made. These different works to be undertaken *in the order of their relative importance*, according to circumstances; and after securing the immediate object for which they were designed, they might remain to be improved upon if opportunity offered.[1]

4. The materials that will be found most useful in barricading the passages, doors, and windows, are boxes, casks, cart bodies, bricks, stones, cinders, dung &c., and timber of any sort that comes to hand: if it cannot be found elsewhere on the premises, the roof and the floors must be stripped to furnish what is required. In the application of these materials, the boxes and casks filled with cinders or dung, and placed against the doors to a height of six feet, will prevent their being forced open, and loopholes may be made through the upper portions, which can be rendered musket-proof, to protect the men's heads: short lengths of timber piled one upon another to the same height, leaving a space between any two of them in a convenient situation for firing through, and their ends being secured in the side walls of a passage, or propped with upright pieces on the inside, will effect the same object; or a door may be loosely bricked up, leaving loopholes, &c. If it is probable that artillery will be brought up for knocking away these

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[1] (Aide Mémoire), J. J.

barricades, and so forcing an entrance, a passage may be partially filled with dung or rubbish to the thickness of eight or ten feet, or thick beams of timber may be reared up on the outside of a door, and the interval filled with the same, or with earth, if more convenient. A small hole, three feet square, may be left through an ordinary barricade for keeping up a communication with the exterior; but for effecting a retreat, or making sorties, it will be necessary to make a door musket-proof by nailing on several additional thicknesses of planks, and arrange it so as to open as usual, or to contrive something on the spot which shall equally protect the men when firing through the loopholes, and yet be removable at pleasure. Windows do not require to be barricaded so strongly as doors, unless from their situation an entrance may be easily effected, or an escalade be attempted. The principal object is to screen and protect the defenders whilst giving their fire; anything, therefore, that will fill up the window to a height of six feet from the floor, and that is musket-proof, will answer the purpose. Thus two or three rows of filled sand bags laid in the sill of a window, or short lengths of timber, would do; or a carpet, a mattress, or blankets rolled up, would be ready expedients. Loopholes would in all cases be arranged, whatever materials were used. If time presses, and windows could not be blocked up, one means of obtaining *partial* security would be to hang a great coat or blanket across the lower part of them as a screen, and make the men fire beneath it, kneeling on the floor. The glass should be removed from windows before an attack commences, as it is liable to injure the defenders when broken by musketry.[1]

5. Any shrubberies, fences or out-buildings, within musket-shot, which would favour an attack by affording cover to an enemy, and allowing him to approach unperceived, it is essential to get rid of as soon as possible. The trees should be felled, leaving the stumps of different heights, so as to encumber the ground, and the materials of walls, &c., must be spread about with the same view; but whatever is convertible for barricades should be carried to the house. The thatch from roofs, and any combustibles, should also be removed or destroyed. As a means of preventing a door being forced, a ditch may be dug in

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[1] (Aide Mémoire), J. J.

front of it, about seven feet wide and five feet deep: such a ditch also is necessary in front of the lower windows, if the loopholes cannot be conveniently made high enough from the outside to prevent an enemy reaching them, as would be done in managing matters for the defence of walls. These partial ditches may afterwards be converted into a continued ditch all round a house if opportunity offers, as it would contribute to the defence of the post. The floors may also be taken up on the inside, opposite the doors or windows open to attack.[1]

6. In defending a house, it would rarely be advisable to make sorties, because the narrowness of the passages through which the troops would have to file would prevent your shewing the enemy a good front, or making a secure retreat in case of necessity.[2]

7. A clear communication must be made round the whole interior of the building, by breaking through all partitions that interfere with it; and for the same purpose, if houses stand in a row or street, the party-walls must be opened, so as to have free access from one end to the other. Means should likewise be at hand for closing these openings against an enemy, who may have obtained any partial possession. Holes may also be made in the upper floors to fire on the assailants, if they force the lower ones, and arrangements made for blocking up the staircases, with some such expedient as a tree, prepared in the same manner as for an abattis, or by having a rough palisade gate placed across. Balconies may be covered or filled up in front with timber or sand-bags, and made use of to fire from downwards. The partial levelling of any object on the outside, that would give concealment to an enemy, and favour an attack, is supposed to have been already attended to; but if time admits, after the loopholes, &c., are completed, this system must be extended and perfected, and the formation of a more regular abattis should be commenced, and any other obstruction added that opportunity permits. The best distance for such obstructions, if they are continuous and cannot be turned, is within twenty or thirty yards of a work, or even less, so that every shot may tell whilst the assailants are detained in forcing a passage through them. If the building that has been selected has no porches, wings or projecting portions from which flank defence can be obtained, it will be advisable

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[1] (Aide Mémoire), J. J.

[2] Macaulay.

to construct something of a temporary nature to afford it. Stockade-work offers a ready means of effecting this object: it may be disposed in the form of a triangle, projecting eight or ten feet in front of a door, or window, planted in the manner, and with the precautions of having the loopholes high enough. A small hole should be left in the barricade of the door, or window, to communicate with the interior. Three or four loopholes on each face of the projection, cut between the timbers, will be found very useful in the defence. These contrivances are usually termed tambours, and if constructed at the angle of a building, will flank two sides of it.[1]

8. All the streets and roads open to attack should be shut up by good barricades constructed in rear of the temporary obstructions that have been created. These barricades may be made, if time admits, by sinking a ditch seven or eight feet deep, and forming the earth into a substantial breastwork, planting palisades, &c., if opportunity offers. Or if not exposed to artillery fire, stockade-work would be very effective; but if time presses, casks, boxes, or cart bodies, arranged in order and filled with earth, stones, dung, or cinders, would be a ready expedient. Bales of goods, hogsheads of sugar, sacks of malt, or even the rolls of cloth out of a tailor's shop, would be very convertible to such like purposes if they come to hand. The mass should be raised six or seven feet high, and a banquette or step be arranged for firing over it. The access should be as much obstructed as possible, and above all, every house in the neighbourhood should be loopholed, so as to give a good flanking fire over the ground in their front. If several barricades are made in a street to be disputed in succession, the means of retreat through them must be preserved. This may be effected by disposing the lines as already explained, by which the passages would be readily closed and defended; and a communication should be made from house to house on each side the street, for firing on an advancing column.[2]

9. Artillery should be placed in the most commanding and inaccessible situations, and where their fire will defend those parts most favourable to the advance of the enemy.[3]

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[1] (Aide Mémoire), J. J. [2] *Ibid.* [3] Instruction in Military Engineering.

CHAPTER VI.

INSURRECTIONS IN TOWNS. STREET FIGHTING.

1. The subject unfolds itself to view in three several ways:—

(1) When a city is defended by the entire population, acting unanimously together, to repel a foreign invader;

(2) When the inhabitants of a city rebel against the Government;

(3) When the insurrection is partial, and confined to small districts of a town, or to certain classes.[1]

2. Although any group of houses, energetically defended, will offer a serious obstruction to troops, yet, for such a defence to be of any permanence, it must, besides the energy of its inhabitants, possess certain natural advantages. The generality of the houses, and all the public buildings, must be sufficiently substantial to offer a certain amount of resistance to artillery; whilst, to prevent the disastrous consequences of conflagrations caused by a bombardment,* it is requisite that there should be an absence of all combustible matter, such as thatched roofs, wooden buildings, &c. Few towns, however, are susceptible of protracted defence, unless they command a plain, or lean on a river.[2]

3. If the suburbs consist of country houses, factories, garden walls, hedges, &c., they should be connected together by palisades, stockades, earthen parapets with ditches, and abattis, &c. All communications, between the town and expected succours, are rendered as easy as possible, whilst those which might favour the approach of the enemy are obstructed in every way that can be devised. If a town is surrounded by an old turreted wall, a banquette should be raised all round this wall by means of scaffolding; all gateways or other entrances which are not requisite are blocked up, whilst those which are to be kept are protected by traverses or field-works; the streets are barricaded, and cuttings made across them in rear of these barricades, which usually consist of plankings, filled with earth, dung, stones, bales of wool or

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* Napier's Peninsular war.

[1] Jervis.

[2] (Aide Mémoire du Génie, par J. Laisné). Jervis.

cotton, &c., fastened down with stakes, fascines, hurdles, &c.; or, of waggons and carriages, likewise filled with earth or dung, and their wheels taken off; or of palisades, stockades, iron chairs, &c. But of whatever materials barricades are formed, they should be able to oppose a resistance of some duration to the enemy's artillery.* The houses flanking these barricaded should be loopholed: it would be well, therefore, to erect barricades between houses which could afford good flank defence. If the town possesses any squares, or open ground of any sort, which the enemy, having once penetrated into the town, could make use of, in order to form, previous to any further attempts, every house commanding the debouch into this square should be loopholed, so as to cross a heavy fire upon it. One or more public buildings should be rendered capable of a protracted defence, and the communications with these must be kept open. Such buildings are defended by having every approach to them barricaded; loopholes are made about four feet from the ground of each floor, especially at the angles; if the building can be surrounded with a ditch, or the ground floor is lofty, loopholes are likewise made in it; but they must be sufficiently high to prevent the enemy choking them up; and a banquette is made within of planking. The windows are blocked up with double beams, loopholed; the balconies or other projections are transformed into machicoulis. An interior defence is made from room to room, and passage to passage, by loopholing the interior walls as well as the floors. The stairs are cut off, and the communications between one floor and another kept up by means of ladders. Paving stones, logs of wood, and other missiles are taken to the top story. If it is expected that artillery will be brought to bear against the building, the principal girders are propped up, so that the breaches may not cause extensive crumblings. The doorways required to be kept open for sorties, should be strengthened by traverses of palisade or tackle, the entrances to which are closed with a strong barrier, or *chevaux-de-frise*, turning on a pivot. If requisite, the building is flanked by traverses, which communicate with it by openings made in the walls. Neighbouring houses, which would inconvenience the defence, or which would afford any advantage to the enemy, must be raised, and any trees or hedgerows which would shelter an attack be cut down.[1]

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* Aide Mémoire du Génie, par J. Laisné.

[1] Jervis.

4. When towns consist of strong built large stone houses, with massive doors, and iron bars covering the lower windows, as are common in the south of Europe and some other countries, they are capable of great defence: traverses may be thrown across the streets, flanked by the houses, all openings to the front may be substantially barricaded, loopholes prepared in the most appropriate situations, and communications made through the premises in the rear for support or retreat: care being at the same time taken that this general defence cannot be turned, it is only to be overcome by breaching, and more or less of a siege operation.[1]

5. When a capital is threatened with violent popular commotions, the first step will be to make every possible provision for the security of the principal government offices and public establishments. But, notwithstanding that all these buildings may be made very strong for self-defence, yet many of them will be situated in the heart of the town, and probably all of them greatly separated from one another. Under these circumstances, if the proceedings of the rioters were conducted with any skill or combination their plan would be, not to attempt to force them by a direct attack, but, in addition to every annoyance to which they could subject them from the neighbouring houses, they would barricade the streets, and occupy the houses commanding the approaches to them, so as to prevent the defenders from receiving any support, or making their escape.[2]

6. If the establishment to be protected is within a city, and surrounded by streets and houses, it will be a primary consideration how it is to be relieved or withdrawn, or how it may be practicable to secure communication with it when necessary; for posts may be exceedingly strong for self-defence, and yet be in danger of being isolated and cut off by a formidable insurrection. This was the source of the principal amount of disaster at Buenos Ayres, in the year 1807: the British troops obtained possession of the different strong buildings thought necessary, in which they could defend themselves well; but the natives having occupied the adjoining buildings and streets, these troops could neither retire nor obtain support, and were consequently obliged to surrender.[3]

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[1] (Aide Mémoire), J. F. B.

[2] Sir J. F. Burgoyne.

[3] (Aide Mémoire), J. F. B.

7. Whenever a party have shut themselves up for protection, it is most desirable that they should have plenty of provisions for the most extreme emergency that can arrive, so as not to require to open a communication to the exterior solely to obtain food, or to be without it for a single meal. A few bags of biscuit and some salt meat afford the most perfect resource, but fresh bread and meat will suffice for most ordinary occasions. Whatever provision, however, may be made for food, it is indispensable to provide plenty of water to drink. A very important precaution is, not to waste ammunition; let the use of it be confined to what is really and absolutely required, and let it be applied only where it can be effective. Many a detachment or post has been driven to the greatest extremities for want of this precaution, and even when the inconvenience has arisen from a clearly thoughtless waste during the early parts of the contest. The nature of the roofs must be considered, for it may be possible to obtain many advantages.

(1) As situations for defence, giving great command and flanking points.

(2) Also they may afford means of offence, by a ready and easy way for penetrating into adjoining buildings.

(3) For lines of communication.

To render them capable, however, of these services, the parapet walls must be high enough to cover the men behind them. The roofs may also require attention, from the circumstance of their presenting a direction from whence an attack may be made on the garrison.[1]

8. A defensive position in a town must fulfil the conditions which have been laid down as essential in every military position, viz.: security to the flanks, strength to the front, easy communication to the rear, and easy lines of retreat. The method of organizing such a position in a town is generally to draw a cordon across the town, covering that part which it is intended to defend. The flanks will be the first objects of attention. If the town be fortified, the flanks will rest on the ramparts on each side, and will be made as strong as local circumstances will allow. The ramparts where the flanks rest, will be cut across by a ditch and a parapet behind, and any high and strong buildings should be

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[1] (Aide Mémoire), J. F. R.

occupied, from which a fire could be directed against the flanks of the assailant as they advanced along the rampart to the assault of the trench and parapet. It is evident that to attack such a position in front and by open force, would be a very formidable operation, and one little likely to succeed. No troops, even with artillery, can force barricade after barricade in narrow streets, with the houses occupied by foes; their number would soon melt away. The secret of this kind of warfare, therefore, is the same as that of mountain warfare—namely, for the assailants to force the defenders to attack, if possible, by taking up positions which molest them.[1]

9. When engaging in street fighting, a general should:—

(1) Before adopting any plan, be perfectly aware of the amount of insurgents and their positions, so as to decide where to strike the decisive blow; for were he, from mere reports, to disseminate his troops on many points, he would run the risk of seeing them defeated in detail—a circumstance which occurred to three companies of the line, who, through a mistake in carrying out their orders, found themselves in the Place Royale without support, and were at once disarmed.

(2) In order that troops may know what orders they are to execute and have confidence in themselves, they must be in sufficient strength, and have the communication with head-quarters kept open.

(3) Night fighting should be avoided; for then it is not possible to see, that the troops preserve proper discipline, or that they do not fall into ambuscade; besides, they require rest.

(4) Troops must be provisioned; and as it may, after the beginning of the conflict, be difficult to provide them with rations, they should be amply supplied before being marched off. The troops engaged in Paris, in 1848, fought with four days' rations on their backs.

Finally, no commanding officer should ever take the command of troops, to engage them, without having uncontrolled command over them, or allow himself to be interfered with by any one.*[2]

10. In most large towns there are to be found certain communications which command its intercourse with the country and its various

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* General Cavaignac's speech in the *Moniteur*, November, 1848.

[1] Mac Dougall. [2] Jervis.

parts. When a town is divided by a river, such as London, Dublin, or Paris, decidedly the most important internal line to hold is the river and quays, by which means not only a ready communication is maintained between the principal public establishments, but the rebels are divided into two, which tends greatly to their discouragement and suppression. Parks and other open spaces afford valuable lines of communication in towns. Thus in London, the parks form, in connection with the river, a valuable strategical line, and, by taking advantage of this circumstance, nearly all the great public establishments could be combined into one system of mutual and concentrated support. A command of the bridges would, of course, be necessary, for the continued maintenance of this line, and is, in other respects, most desirable as an interruption to any combined action on the part of the insurrectionists, on the two sides of the river. The parks would be occupied by a general reserve force of infantry, cavalry, and artillery. These troops would be employed, not only to support powerfully any points that might be threatened or attacked, but could debouch from any part of the circuit occupied by them, in order to attack the rioters in front or flank. By the occupation also of Whitehall and Gwydyr House, this position might be connected with the Thames; and, by this means, an internal line of communication, extending from the Tower to Kensington Palace, and embracing in its circuit nearly every public establishment, is securely established, and could be maintained without much difficulty.[1]

11. The inhabitants of a city may be unanimous in their rebellion against a government, or it may be confined to a small portion of the citizens, occupying certain districts of a town. In the first case, it would be expedient to have recourse to negative measures, for civil war is at all times of so terrible a nature, that it must ever be an important object to avoid the consequences of a conflict, which is the more to be dreaded in such cases, that, even if the troops be successful, a bitterness of feeling is left behind, which is seldom, if ever, eradicated. But, whatever measures be adopted, troops must on no account whatsoever be brought into collision with the insurgents, unless in sufficient force to put down effectually all resistance; the best plan, therefore, when the garrison is not sufficiently strong, is to cut off all communica-

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[1] Sir J. F. Burgoyne.

tions between the town and the neighbourhood, as the population requiring constant and daily supplies of provisions from the country, the interruption of the communication would so distress the town that the strongest in the field must eventually have the advantage. This was the plan proposed by the Duke of Wellington,* in 1819, during the great riots of Glasgow; and General Cavaignac† stated, in 1848, with reference to the insurrection in Paris, that had he not had an enormous military force, he would have considered it prudent to retire from that city. General Schrekenstein, the Prussian minister of war, in 1848, is likewise said to have recommended the same plan for the defence of Berlin.‡ Indeed, any attempt to defend a town, with an inferior force, can be attended only with defeat and ignominy.[1]

12. When the insurrection§ of July, 1830, broke out in Paris, the garrison consisted of no more than 11,550 men. Marmont's design appears to have been to occupy in force the Champs Elysées, the Tuileries, the Ecole Militaire, the Panthéon, the Palais de Justice, the Hotêl-de-Ville, and the interior Boulevards, the occupation of which latter would protect several empty barracks. The defence of the Palais Royal he confided to a battalion of the guards; but this force had to keep a communication on one side with the bank, in which 100 men were posted, and on the other with the Louvre, by the Rue du Coq, and other streets in that direction. As the outline of a plan for the defence of Paris, it was very good; but the marshal had totally forgotten that the plan should be conformable to the number of troops at his disposal, and that by endeavouring to preserve every point, he was merely disseminating his small force, and giving them up an easy prey to a resolute mob. But even these dispositions did not satisfy Marmont; he was further anxious to keep open the great perpendicular communications which cross Paris from the Porte St. Denis to the Panthéon, through the great streets of St. Denis and St. Jacques, and from the Tuileries to the Boulevard, through the Rue de Richelieu, as well as two interior lines parallel to the river, through the Rue St. Honoré, and the

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* Sir F. B. Head's Defenceless State of Great Britain.

† Speech of General Cavaignac in the *Moniteur.*

‡ Aide Mémoire, Art. Street Fighting.

§ The insurgents were computed at about 60,000.

[1] Jervis.

Marché des Innocens, and along the quays and Places du Châtelet and de Grève, to the Place St. Antoine at the extreme east of the town.[1]

13. The Marshal would have involved all his troops, at an immense distance from each other, and without the possibility of mutual co-operation and support; and, besides, involved them in the most intricate parts of the city, in narrow and crooked streets, between rows of houses of great elevation, in the midst of a dense population of a most enterprising character: whilst he left ungarrisoned the important parts of the town; that is to say, the Louvre, the Tuileries, and the Champs Elysées.[2]

14. The events of the 29th July, being so intermixed with political influences, and the total disaffection of the Line operating strongly in favour of the popular cause, cannot afford any very useful lesson to street fighting; but, as an example of what should have been done on the 28th, we will take the events of the 13th Vendémiaire. The garrison of Paris, at that time, consisted of but 5,000 troops, 1,500 patriots, and some 1,500 gendarmes, police, invalids, &c. The insurgents could bring forward about 40,000 well armed men, but they possessed no artillery. The entire park was at the camp of Sablons; Bonaparte at once ordered the chef d'escadron, Murat, to bring it into Paris. With 300 cavalry, this officer overtook a battalion which the insurgents had sent for a similar purpose, got in front of them, horsed the guns, and brought them to the Tuileries. Bonaparte posted his artillery and troops in the culs-de-sac of Dauphin, l'Echelle, Rohan, Saint Nicaise, on the bridges of the Pont-Neuf, Pont-Royal, Pont Louis XVI., on the Place Louis XV. and of Vendôme, and, in fact, in every point in which the convention was assailable. He formed a reserve with his cavalry and part of his infantry, which he posted in the Carrousel and garden of the Tuileries. He ordered all the provisions in Paris to be brought to the Tuileries, and established there a depôt of ammunition and a hospital for the wounded; he intercepted the road to St. Germains, by which the enemy might have obtained artillery, and sent a detachment to occupy the depôt of Meudon, with its heights, that the convention might retire in case of defeat.[3]

15. Aware of the moral influence which would be obtained by appearing to avoid hostilities, the troops had strict orders to keep on

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[1] *Jervis.* [2] *Ibid.* [3] *Ibid.*

the defensive. The insurgents, numbering some 25,000 actually under arms, organized a system of attack. The sections of the Faubourg St. Germain were to leave the Odéon, and attack the Tuileries by the bridges; the sections of the right bank were to attack by the Rue St. Honoré and by all the transversal streets which cross from the Rue St. Honoré to the Tuileries; whilst a third portion was to take possession of the Pont-Neuf, so as to keep up the communication between the two attacking columns. Bonaparte determined to maintain his position, never for a moment allowed the various outrages committed by the insurgents in different parts of the capital to withdraw any portion of the troops from their posts, and the sections obtained peaceable possession of much of the provisions destined for the Tulieries, and of the Treasury. The detachment which occupied the Pont-Neuf, retired towards the Louvre, as soon as the enemy appeared to take possession of that bridge. It is true that the troops would have obtained great advantage in maintaining that position: but the moral effect of being on the defensive, and of allowing the inhabitants to look on the insurgents as the aggressors, was of too great an importance to be lost.[1]

16. About half-past four p.m., the people advanced to attack the Tuileries, having placed such young men as had served in the army, at the head of their columns. Bonaparte immediately rode to the detachment posted at the cul-de-sac Dauphin, which opened on the church of St. Roch. The sectionists filled the Rue St. Honoré, and one of their best battalions was posted on the steps of the church, so as to bring a plunging fire to bear on the artillerymen. Bonaparte bringing his guns at once into action, overwhelmed them with grape-shot. The people fell back before this tremendous fire; but, as they still kept up a musketry-fire from the steps of the church, he ordered a company of patriots to storm the church, and, bringing his guns up to the Rue St. Honoré, he swept it both to the right and left. Leaving that detachment to finish the victory, he returned to the Carrousel. The insurrectionists of the Faubourg St. Germain, joined by some 6,000 of those who had been driven back from the Rue St. Honoré, advanced in close column from the Pont-Neuf to the Pont-Royal, along the Quai Voltaire. Bonaparte, to receive them, placed

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[1] Jervis.

several batteries along the Quai des Tuileries, which is parallel to the Quai Voltaire, and a battery to enfilade the Pont-Royal. Allowing the insurgents to advance some distance on the bridge, he ordered all the guns to open fire. Taken in front, and in enfilade, death and terror soon pervaded their ranks. In vain their leaders tried to induce them to charge the battery at the debouch of the bridge; a fire renewed with fresh energy carried away numbers, until the remainder turned and fled. At six o'clock, the engagement was over. A few insurgents having retrenched themselves on the Place Vendôme, in the church of St. Roch, and the Palais Royal, Bonaparte debouched his troops, by every issue from the Rue St. Honoré, and detached a corps which, leaving the Place Louis XV., crossed the Rue Royale, and advanced along the Boulevards. He thus swept the Place Vendôme, disengaged the church of St. Roch, invested the Palais-Royal, and blockaded it for the night. On the morning, a few volleys caused it to be evacuated, and tranquility was restored.[1]

17. The 13th Vendémiare is well worthy of attention, in many points of view,—the determination with which the troops withstood the temptation of becoming the assailants, in order to have the moral power of the conflict,—the manner in which they were concentrated and provisioned; for, whether in the field or in a town, the troops must be fed. Yet, in 1830, this point was totally overlooked. But if Bonaparte awaited the conflict patiently; once begun, it was vigorously opposed and put down; and, by bringing artillery to bear, he gave a strong support to his own small force, while he exposed it as little as possible.[2]

18. When disturbances are to be quelled in a town, cavalry, artillery, and infantry can act with full effect, and with every advantage of organization, so long as the rioters occupy the open streets. If barricades are constructed across them, the cavalry become unserviceable; the infantry, however, have still full force, for one side of the barricade is as good as the other, and the infantry can cross any of them without difficulty. But, when, in addition to the street barricades, the armed populace barricade and occupy the houses, fire from them, and throw down missiles on the troops, the columns of the infantry also become

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[1] *Jervis.* [2] *Ibid.*

helpless and paralyzed; after losing many men, they have usually under such circumstances been repulsed; a discomfiture arising more from want of system and of due preparation for opposing such a defence, than from the inherent power of the insurgents.

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When it is found that insurgents have had recourse to the most determined means of resistance, by occuping the interior of houses in support of barricades, the mode of attack must be adapted to the circumstances, but still ought not to be difficult. The operation should, however, be conducted with due deliberation, nor would any advantage be lost by a moderate pause. It will be readily ascertained, what part or parts of the town are so occupied, as to render the movement of the troops, through the open streets unadvisable. An endeavour should be made to isolate those portions by detachments of troops, posted at all the approaches to them that remain available.[1]

19. Active measures, might * be carried on against any portions of the houses that it may be considered advisable to force, for the purpose of confining the resistance within narrower limits, or for subduing it at once altogether. These should be conducted on engineering principles, and by the engineers and sappers, where they are available.

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Although it is assumed, that the engineers and sappers alone can overcome this kind of resistance with success, wherever artillery, particularly if as heavy as 18-prs., and 8-in. howitzers, can be brought to bear on the buildings supporting the barricades (which is far better than on the barricades themselves), without exposing the gunners to a destructive musketry-fire, it will greatly accelerate and render easier the proceedings, and probably occasion less loss to the troops. Thus, should the building be entirely isolated, with an open space around it, a gun or two, or even some powerful rockets, brought up against it, would probably soon effect an opening.[2]

20. There are certain cases, however, in which it is necessary to attack the insurgents in their strongholds, either to prevent the germs of rebellion spreading further, or for the protection of property. In

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[1] Sir J. F. Burgoyne. [2] *Ibid.*

1848, the French government, having strong reason to suspect that attempts would be made to overturn it, by the Socialists, took every precaution to strengthen to the utmost the garrison of Paris. On the morning of the 23rd June, however, the insurrection broke out; and, in the course of a few hours, the insurgents had taken possession of a segment of the town, of which the river, the canal St. Martin, and the Rue and Faubourg St. Denis, formed the three principal sides. The insurrection was, therefore, master of all the eastern part of Paris, from the Barrière St. Jacques to that of Montmartre; it likewise occupied the Place de Grève, and a part of the city. Advanced posts and secondary barricades had been erected, on one side of the river, as far as the upper part of the Faubourg Poissonière and the Rue Rochechouart, and on the other, as far as the Rue de la Harpe and the place St. Michel. They had likewise intrenched themselves in the close of St. Lazare, whilst auxiliary points had been organized outside the walls, at Montmartre, La Chapelle, and Belleville. These positions commanding a number of barrières, their communication with the open country insured them every kind of facility for provisions.[1]

21. General Cavaignac, having been invested with full powers by the National Assembly, divided Paris into three districts. General Lamoricière fixed his head-quarters at the Porte St. Denis, to attack on the left bank of the river; General Damesme had his head-quarters on the Place de la Sorbonne, and was to operate on the left bank; and General Bedeau, from the Hôtel de Ville, was to attack on the side of the Rue St. Antoine and the Petit-Pont, which would connect the operations of Generals Lamoricière and Damesme; whilst a strong reserve was stationed at the National Assembly. But to carry out this gigantic attack, Cavaignac had a force of upwards of 50,000 men, exclusive of the National Guards. For three whole days this terrible conflict lasted from morning till night, and, in spite of the barricades being breached by artillery, of shells being thrown into the whole district, of the mine being brought into play, the troops could gain their ground but step by step; the insurgents, beaten from one stronghold, rapidly reaching another. Finally, on the fourth day, they were forced to retreat from all sides into the Rue du Faubourg St. Antoine, which

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[1] Jervis.

offered a succession of very close barricades, almost all cannon-proof, from one end of the street to another, the cross-streets, leading on one side towards the canal, and on the other towards the Seine, being likewise barricaded. At ten o'clock a battery of mortars on the Place de la Bastille bombarded the Faubourg on that side, and, in a short time, a few shells had set fire to some of the nearest houses. A mine also, pushed some considerable distance, threatened to blow up a considerable number of the insurgents, whilst their position was taken in flank by General Lamoricière. Perceiving the inevitable consequences of further opposition, they capitulated. To shew, however, how these barricades had been defended during the previous three days, it may be sufficient to state that General Cavaignac having in person, with seven battalions and artillery, attacked a barricade which had been constructed at the Temple; it was defended with such energy, that, after losing two-thirds of his gunners, he was obliged to obtain further reinforcements from General Lamoricière, before, at the end of three hours, the insurgents could be made to give up that position; and that, during the insurrection, the troops burnt 2,100,000 cartridges.[1]

Defence of Saragossa.

22. 'At Saragossa,' after the French held the ramparts of the town as their front line, the houses nearest to their lodgments were filled by the Spaniards. Additional traverses and barricades were constructed across the principal streets; mines were prepared in the more open spaces, and the communications from house to house were multiplied, until they formed a vast labyrinth, of which the intricate windings were only to be traced by the weapons and the dead bodies of the defenders.

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The crossing of the large streets divided the town into certain small districts, or islands of houses. To gain possession of these, it was necessary not only to mine, but to fight for each house. To cross the large intersecting streets, it was indispensable to construct traverses above or to work by underground galleries; because, a battery raked each street, and each house was defended by a garrison that, generally speaking, had only the option of repelling the enemy in front, or dying on the gibbet erected behind. But as long as the convents and churches remained in possession of the Spaniards, the progress of the French among the islands of small houses was of little advantage to them, because the large garrisons in the greater buildings enabled the defenders not only to make continual and successful sallies, but also to countermine their enemies, whose superior skill in that kind of warfare was often frustrated by the numbers and persevering energy of the besieged.[1]

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[1] Jervis.

23. * * Hitherto the play of the French mines had reduced the houses to ruins, and thus the soldiers were exposed completely to the fire from the next Spanish posts. The engineers, therefore, diminished the quantity of powder, that the interior only might fall and the outward wall stand, and this method was found successful. Hereupon the Spaniards, with ready ingenuity, saturated the timbers and planks of the houses with rosin and pitch, and setting fire to those which could no longer be maintained, interposed a burning barrier, which often delayed the assailants for two days, and always prevented them from pushing their successes during the confusion that necessarily followed the bursting of the mines.[2] * *

24. As an isolated transaction, the siege of Saragossa is very remarkable; but it would be a great error to suppose that any town, the inhabitants of which were equally resolute, might be as well defended. Fortitude and bravery will do much; but the combinations of science are not to be defied with impunity. There are no miracles in war! If the houses of Saragossa had not been nearly incombustible, the bombardment alone would have caused the besieged to surrender, or to perish with their flaming city.[3]

25. * * The defenders were composed of three distinct parties, —the regular troops, the peasantry from the country, and the citizens; but the citizens, who had most to lose, were naturally the fiercest, and, accordingly, amongst them the system of terror was generated. The peasantry followed the example, as all ignorant men, under no regular

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[1] Napier, Vol. II. [2] *Ibid.* [3] *Ibid.*

control, will do; the soldiers meddled but little in the interior arrangements, and the division of the town into islands of posts, rendered it perfectly feasible for violent persons, already possessed of authority, to follow the bent of their inclinations; there was no want of men, and the garrison of each island found it their own interest to keep those in front of them to their posts, that the danger might be the longer staved off from themselves.[1]

26. From a review of all the circumstances attending the siege of Saragossa, we may conclude that fortune was extremely favourable to the French. They were brave, persevering, and skilful, and they did not lose above 4000 men; but their success was owing partly to the errors of their opponents, principally to the destruction caused by the pestilence within the town; for, of all that multitude said to have fallen, 6000 Spaniards only were slain in battle. Thirteen convents and churches had been taken; but, when the town surrendered, forty remained to be forced.[2]

Defence of Tarifa.

27. The siege of Tarifa, in 1811, was also conspicuous for its internal defence. A small town of 3000 inhabitants, surrounded by a very old Gothic wall, flanked with towers; it stands on a promontory, forming the southern extremity of Spain and Europe. The wall was soon breached; but Captain C. F. Smith, the chief engineer, as soon as the point intended to be breached was ascertained, adopted every possible measure to retrench it, or render the entry difficult. There being a difference of thirteen feet between the level of the rampart and of the street, the space within was kept clear from rubbish, and covered with strong iron gratings, taken from the windows of the houses, having the intermediate bars broken and turned up. Every street communicating with the rear of the breach was blocked up with defensive traverses; and the houses in its vicinity were loopholed for musketry, and furnished with hand grenades. Similar precautions were also perfected in rear of every point of the wall likely to be escaladed, so that the garrison might defend

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[1] Napier, Vol. II. [2] *Ibid.*

every house and every street, and wherever attacked, finally conc in the substantial and lofty castle of the Guzmans, which closed gorge of the town. The enemy attempted an assault, but and perceiving that a severe loss would be sustained in the end to overcome such difficulties, raised the siege.[1]

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[1] (Jones's Journal of Sieges in Spain), Jervis.

CHAPTER VII.

FIELD WORKS AND SHELTER-TRENCHES.

1. In a war of march and manœuvre, if you would avoid a battle with a superior army, it is necessary to intrench every night, and occupy a good defensive position. Those natural positions which are ordinarily met with, are not sufficient to protect an army against superior numbers without recourse to art.[1]

2. Those who proscribe lines of circumvallation, and all the assistance which the science of the engineer can afford, deprive themselves gratuitously of an auxiliary, which is never injurious, almost always useful and often indispensable. It must be admitted, at the same time, that the principles of field fortification require improvement. This important branch of the art of war has made no progress since the time of the ancients. It is even inferior, at this day, to what it was 2000 years ago. Engineer officers should be encouraged in bringing this branch of their art to perfection, and in placing it upon a level with the rest.[2]

3. "If we are inferior in numbers," says Marshal Saxe, "intrenchments are of no use, for the enemy will bring all his forces to bear upon particular points. If we are of equal strength, they are unnecessary also. If we are superior, we do not want them. Then why give ourselves the trouble to intrench?" Notwithstanding this opinion of the inutility of intrenchments, Marshal Saxe had often recourse to them.[3]

4. A general of ordinary talent, occupying a bad position, and surprised by a superior force, seeks his safety in retreat; but a great captain supplies all deficiencies by his courage, and imposing upon the enemy with a confident front, marches boldly to meet the attack. By this means he disconcerts his adversary, and if this last shows any irresolution in his movements, a skilful leader, profiting by his indecision, may even hope for victory, or at least employ the day in manœuvring; at night he intrenches himself, or falls back to a better position. By this determined conduct he maintains the honour of his arms, the first essential to all military superiority.[4]

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[1] Napoleon. [2] *Ibid.* [3] Sir G. C. D'Aguilar. [4] Napoleon.

5. In 1653, Marshal Turenne was surprised by the Prince of Condé, in a position in which his army was completely compromised. He had the power, indeed, by an immediate retreat, of covering himself by the Somme, which he possessed the means of crossing at Peronne, and from whence he was distant only half a league; but fearing the influence of this retrograde movement on the morale of his army, Turenne balanced all disadvantages by his courage, and marched boldly to meet the enemy with very inferior forces. After marching a league, he found an advantageous position, where he made every disposition for a battle. It was three o'clock in the afternoon, but the Spaniards, exhausted with fatigue, hesitated to attack him, and Turenne, having covered himself with intrenchments during the night, the enemy no longer dared to risk a general action, but broke up his camp.[1]

6. The ground over which an enemy must pass, should be defended both by direct and flanking fire. The work should be so traced that its faces are secured from enfilade fire; and, when this is not possible, traverses should be placed, at intervals, inside the face so exposed to enfilade. Salient angles should be as large as possible, and never less than sixty degrees. Angles of defence should be slightly obtuse, about ninety-five degrees. No face or flank should be shorter than fifteen yards. Flanks should be within easy range of the parts they have to defend. There should be no dead ground, or undefended space, in front of or in the ditches of the work. Obstacles should be placed on those parts, over which an enemy is most likely to cross, in order to delay him under fire of the work.

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The dimensions of parapets for field works are regulated,—As to height, by the cover required and the enemy's position; as to thickness, by the projectile likely to be brought to bear against it; for musketry three feet, field artillery fifteen feet.[2]

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7. Natural obstacles are not always sufficient to constitute a good defensive position; it is nearly always necessary to complete them by manual labour. The temporary redoubts and lines composed of earth, with ditches, are of sufficient height to cover infantry, artillery

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[1] Sir G. C. D'Aguilar.

[2] Hand-Book.

(about 6 feet 6 inches), and sometimes also cavalry, on their horses, (about 8 feet 2 inches). The thickness of the earth ought to be sufficient to resist the enemy's projectiles for many hours; their shape is that of parapets with banquettes, permitting the employment of both musketry and artillery, the latter either *en barbette* or through the embrasures. Newly excavated earth, 1½ feet thick, is proof against the French rifle ball, fired at about 27 yards. Against artillery, not less than 13·1 feet at the top should be given.[1]

8. Artificial cover can be best obtained by means of small trenches called *shelter-trenches*. It is essential that there should be ready means of getting in and out of these trenches both to the front and rear; it is also desirable that they should not offer any great impediment to a forward movement, and that troops should be able to march straight over them when necessary. At every hundred yards or so, to enable guns, cavalry, &c., to pass, slight ramps should be formed, or intervals left in the trenches, which may at these places be made to overlap.[2]

9. The most rapid way for infantry to obtain cover, is by the excavation of a trench 2 feet wide and 1½ feet deep; the earth is thrown to the front so as to form a parapet about 1½ feet high, the interior slope being built as steep as possible with sods, clods, &c. Such a trench can be executed by men with their accoutrements on, distributed at from 4 to 6 feet intervals, in from 10 to 20 minutes. This is the smallest trench that is of any use, and will afford cover to two ranks, one kneeling in the trench, and one lying in rear of it. The above trench can be widened out to 4 feet, in from 10 to 20 minutes more, and will then afford cover for a double rank, kneeling. This may be considered an effective trench for occupation for a limited time, but as the troops in it would be in a constrained position, it would be desirable, should still more time be available, to widen it out to a total breadth of 7 feet, which would require about 20 minutes more. * * Small trenches in rear, 2 feet wide and 1½ feet deep, are for the officers and non-commissioned officers of the company.[3]

10. At the Dartmoor experiments, in 1869, temporary infantry-cover, was obtained by a 'hasty trench thrown up in eighteen minutes, 2 feet 7 inches wide, 1 foot 3 inches deep, for front rank kneeling,

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[1] Prevost. [2] Instruction in Military Engineering. [3] *Ibid.*

the rear rank lying down in rear. Also, by a hasty trench thrown up in 26 minutes, 4 feet wide, 1 foot 3 inches deep, for two ranks kneeling.' 'A portion of a parallel was thrown up in 1½ hours, 6 feet wide, 2 feet 6 inches deep; intended for two ranks standing.'

11. Sir John Burgoyne, alluding to the means of obtaining the greatest amount of cover artificially, in a limited period of time, observes: 'The only absolutely necessary accessory would be a sufficiency of tools; that is, of *pickaxes* and *shovels;* but therein comes the first and leading difficulty. A few of these, with certain small appendages of carpenters' and smiths' tools, have always accompanied an army; but most grudgingly provided, and in very small quantity, on account of the difficulty of maintaining the amount of transport for provisions, forage, spare ammunition, means for treatment and conveyance of sick and wounded, and other objects, to which intrenching tools have always been considered of minor importance. The more urgent necessity, however, for having such means at hand, for the purpose of obtaining cover, will now cause much more importance to be attached to this demand, and obtain for it more serious attention.'[1]

12. In the American war, use was made to an extent unprecedented in this century of improvised fortifications. Since that time, the value of these has increased; for as the fire of a line becomes more formidable, so does shelter from it become of proportionate importance, conferring comparative immunity on the one side, while, on the other, troops detained in front of an obstacle at close range, would be in danger of absolute extermination. Hence the prevalence of an opinion that, in preparing for an engagement, field works will be made to secure the increased advantage. But it must be remembered that in many battles, there is no opportunity for this kind of preparation. An action is sometimes forced on an unwilling and unprepared adversary; or it may come as the climax of a series of rapid manœuvres, when the general who expects presently to receive battle in open ground must, from the weariness of his troops, give the interval to repose and not to labour. Moreover, the small number of tools which battalions can carry on the march, must limit the extent of their efforts to intrench themselves. The example of American warfare is scarcely applicable; the battles

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[1] Professional Papers, R. E.

were frequently fought in thickly-wooded districts, and the armies were largely composed of skilful woodsmen, so that the covering of troops by an entanglement was a work of comparative ease. Nevertheless, positions will probably be considered unassailable in front, more frequently than before; this will have its due effect on the character of manœuvres, and the circle of time may produce conditions resembling those of the last century, when the Austrians, persuaded of the advantages of occupying and strengthening positions, clung to them to the last, and Frederick risked even his communications, as at Prague and Kölin, for the sake of seeking to engage on more equal terms.[1]

13. Prince Mentschikoff rested 'his reliance on the natural strength of the position on the Alma,' upon the assumption that he could hold the position for at least many days together. Yet he took little pains to prepare the ground for a great defence. On the jutting rib, which goes round the front of the Kourganè Hill, at a distance of 300 yards from the river, he threw up a breastwork,—a work of a very slight kind, presenting no physical obstacle to the advance of troops, but sufficiently extended to be capable of receiving the fourteen heavy guns with which he armed it. This was called the Great Redoubt. Prince Mentschikoff was delighted with this earthwork. * * * And he * pointed out how, whilst the face of the redoubt commanded the smooth slope beneath it, the guns at the shoulder of the work, would throw their fire across the great road on either side of the bridge. On the same hill, but higher up and more to his right, the Prince threw up another slight breastwork, which he armed with a battery of field guns. This was the Lesser Redoubt. The vineyards at some points were marked and cleared, so as to give full effect to the action of the artillery; but except the two redoubts, no field works were constructed by the Russian general. Wilful and confident, he was content to rest mainly upon the natural strength of the ground, the valour of his troops, and the faith that he had in his own prowess as a commander. He even omitted * * to break up or to guard the waggon-road, which led up from Almatamack to the left of his position.[2]

14. It was Marlborough who impressed upon military men the importance of the maxim, 'when you have determined to attack a

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[1] Hamley, Part VI., Chap. V.

[2] Kinglake, Vol. II.

position, do so before the enemy intrenches himself,' by his words with respect to the enemy's intrenchments at Donauwerth, and by the prompt and successful action which he undertook in confirmation of his views. He was then (1704) making his celebrated march from the Netherlands into Bavaria, and desired to find a good point for his passage of the Danube, one which would secure his retreat, if necessary, and should also be strong enough to form a depôt for his army. Donauwerth appeared to him a suitable place for this purpose, and after meeting Prince Eugène at Mondelsheim, on the 10th June, and arranging a plan of operations in conjunction with that able general, Marlborough, continued his advance upon Donauwerth. On arriving, on the 2nd July, before that place, he found the enemy endeavouring to intrench himself on the heights of Schullenberg, in front of Donauwerth. As soon as Marlborough ascertained that the works were still incomplete, he determined to attack them, although his colleague, the Margrave of Baden, endeavoured to dissuade him from doing so without a heavy artillery, and with troops wearied by a long and difficult march. But Marlborough replied, "either the enemy will escape, or will have time to finish their works. In the latter case, the delay of every single hour will cost the loss of a thousand men." And though it was late in the afternoon before he was able to attack, he did so with complete success, and probably, with nothing like the loss of life he would have suffered had he delayed his assault until the next day.[1]

15. The neglect of the use of intrenchments, in the position occupied by the force at Albuera in 1811, under Marshal Beresford, is thus commented on, by Sir William Napier: "Marshal Beresford had fixed upon and studied his own field of battle above a month before the action took place, and yet occupied it in such a manner as to render defeat almost certain; his infantry were not held in hand, and his inferiority in guns and cavalry was not compensated for by intrenchments."

16. Early in the 'American civil' war, the men were trained to throw down the fences, to break them into pieces, and form them into a heap of about two feet or two-and-a-half high, behind which the men might crouch and safely avoid bullets. Then a little earth was thrown up, some trees cut down, and a breastwork made sufficiently strong to

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[1] Walker.

keep them from ordinary artillery and musketry fire. These were the original intrenchments. Then ditches and rifle pits were often formed, and in a short time a strong position made. This was repeated hundreds of times in the course of these Western campaigns.[1]

17. In France, the intrenching tools are carried in carriages, to which are attached for use in countries where it is difficult to travel, bât animals. * * * * In the field, a company of sappers furnished with tools, which are carried by them, is attached to each division of infantry. They are supplied with 36 spades and pickaxes. This company takes with it two carriages, conveying 94 spades and 38 pickaxes. By this plan, a division of infantry, is provided with 130 spades and 74 pickaxes. Besides these, each *corps d'armée* possesses a special park, with 1150 spades and 542 pickaxes.[2]

Intrenching Field Artillery.

18. Artillery makes use of artificial for want of natural cover, in previously prepared defensive positions, when the requisite time is available. This is effected by sinking the piece; for this purpose an excavation is made for it to stand in, the front edge being 1½ feet deep, from whence it runs backwards in an inclined plane, the earth on the front side being thrown up to 1½ feet high, with a gradual slope towards the enemy. Ditches are dug at the side for the men. This system of sinking the piece is used to particular advantage behind the edge of a hill, because the piece may be brought nearer the ridge, and the slope in front of the artillery is better commanded. Next to the covering of the pieces from the fire of the enemy's artillery and musketry, covering the limbers is of the greatest importance, for on their preservation the efficiency of the battery, both as to movement and fire is dependent.[3]

19. The French method of intrenching Field Artillery, as adopted at the camp Chalons, is taken from an interesting paper, on that subject, by Lieutenant R. Walkey, R.A.:—

"The battery being drawn up in line, a distance of (7) seven feet is marked out on either side of the muzzle of each gun, and a breadth of

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[1] (U. S. Institution). C. C. [2] Prevost. [3] Taubert.

3 feet 3 inches is measured to the front; on this rectangle of 14 feet by 3 feet 3 inches is built up the parapet, the earth for which is obtained from a ditch 3 feet 3 inches deep, and 3 feet 3 inches wide, dug in front.

"From each extremity of this front face, 12 feet are measured off at right angles to the face, and at a distance of 4 feet from each angle formed by the face and flank, a ditch 3 feet 3 inches wide and 2 feet deep is dug. The width (3 feet 3 inches) of each of these ditches is measured in towards the interior of the work and the earth from them is thrown outside, instead of inside as was the case with the front ditch.

"Some of the earth from the front and flank ditches must be placed so as to form the parapet of the epaulments, and though this be done, since freshly dug earth occupies a greater space than that of the hole from which it is obtained, there will still be enough earth to give a parapet 3 feet high around the work.

"Not more than seven men can conveniently dig at the same time, three being able to work in the front and two in each flank ditch, but other men can be well employed in revetting the parapet with sods and building up in places where required.

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"Cover to a height of 3 feet was obtained, and from a distance of 600 yards the guns appeared much protected, and certainly were so from the fire of musketry. It was however generally remarked that the space in the interior of the work was too limited, for when the trail was much thrown over to either side, there was danger when the gun recoiled of one wheel running back into a flank ditch.

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"At the same time that the works referred to were being made, a party of non-commissioned officers intrenched a gun in a pit, which was made three feet deep in front with a gradual slope upwards to the rear. The earth from this pit was thrown up so as to form a parapet three feet high in front and on either flank, and lastly a small embrasure for the gun to fire through was cut in the front face. Whilst this pit took no longer to make than the one of the detached works before described, it afforded greater and more efficient cover; greater inasmuch as the parapet was six feet high in front, and more efficient since three feet of this parapet were cut out of solid earth; indeed, after standing in a work of each kind, viz., a pit, and intrenchment constructed according to the French system, one could not for a moment hesitate to pronounce in favour of the pit, as regards protection to the detachments and guns.

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"Against making pits it is urged that in heavy rain, they become pools of water; that when the gun recoils the trail and wheels of the carriage soon imbed themselves in soft soil owing to the surface earth having been removed; and that on account of the guns being nearly on a level with the ground any slight inequalities in front are not searched into by the fire.

"On the other hand pits for field guns are not likely to be occupied for more than a few hours; whilst the guns are so light and handy that the objection as regards the soil being soft cannot be considered important: and a grazing fire, provided all the ground in front be commanded, is exactly what is wanted. It is however not the intention of the writer to advocate any particular system of obtaining cover, so much as to bring to notice that continental armies are busy practising intrenching field artillery, and to point out that in the short space of thirty minutes, half a dozen men from a gun detachment can throw up around their gun a work, which if properly made, will afford them some shelter from the enemy's shells and greatly defend them from the fire of his riflemen."

CHAPTER VIII.

SECTION I.

ENCAMPMENTS.

1. The art of encamping in position, is the same as taking up the line in order of battle in this position. To this end, the artillery should be advantageously placed, ground should be selected which is not commanded or liable to be turned, and, as far as possible, the guns should cover and command the surrounding country.[1]

2. Never lose sight of this maxim, that you should establish your cantonments at the most distant and best protected point from the enemy, especially where a surprise is possible. By this means you will have time to unite all your forces before he can attack you.[2]

3. In marches, encampments are made to rest the troops and to satisfy their wants, not at all to fight. An encampment is made, by preference, on the banks of a streamlet, near a village, because the soldiers have the advantage of the water, and the resources which a collected population presents. But however important these considerations may be, safety also must be considered, and the means of resisting an unforeseen attack and a surprise must not be neglected. I am not speaking of guards, who always must cover and surround the camp; they are of prime necessity, were it only in the relation of a police force. When there is an obstacle the establishment of camps should be chosen within, and never beyond, at least for the greatest part of the troops. Without doubt it would be advantageous, when the day's march begins, to have passed a defile and to debouche more easily; but this advantage is more than compensated by the security of the repose. If there is no obstacle, or if this obstacle may be easily turned, a surprise is to be feared; a large body of cavalry may suddenly appear as if it had sprung out of the earth; safety then is to be found in the arrangement of the encampment itself. There are two modes of encamping; the troops deployed in front of the color-line, and the troops formed in mass by battalions. This last arrangement is far preferable, and offers all kinds of advantages.[3]

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[1] Napoleon. [2] *Ibid.* [3] Marmont.

4. The position of the enemy and the nature of the ground, both in a military and a sanitary point of view, must determine the choice of a camp. The front of a camp should be proportionate to the force which is to occupy it. It should not be of greater extent than the front of that force when drawn up in line of battle. A camp should not be intersected by ravines or other obstacles, such as marshes, rivers, ditches, &c.; and the communication should be quite free from flank to flank and to the rear. A camp should have its flanks secure, and should not be commanded or enfiladed by any high ground in front or on the flanks within cannon shot. When, however, this cannot be avoided, such commanding ground should be occupied by advanced posts strongly intrenched, and the camp itself should be protected as much as possible by traverses, retrenchments, epaulments, and scarpments. A camp must be guarded by its pickets, sentries, videttes, and cavalry patrols, in the same way as a position, and all that has been said about outposts applies equally to a camp as to a position. Care must also be taken to secure the means of retreating from it as well as those of debouching for the purpose of attacking the enemy. A camp should be well supplied with water within a convenient distance and secure from interruption by the enemy. It should also afford the means of fuel, so as to prevent the necessity of its being brought from a distance. The neighbourhood of a camp should furnish as many supplies as possible for the support of the troops. A camp should be situated upon dry healthy ground, and should of course be accessible from the road.[1]

5. The position of camps is very important. The neighbourhood of marshes, ground liable to be flooded, or surrounded with foul stagnant water, low places covered with brushwood are all injurious to health. The noxious effluvia from these are increased in proportion to the heat or the season of the year. The danger of such situations is in some degree dependent on the *temporary* or *permanent* nature of the camp; ground may be occupied for one night, which would be very bad for a permanent station. If compelled to encamp on wet or marshy ground, cut drains across the land and around each tent. If near marshy ground, make use of all obstacles, such as trees or hills to keep off malaria from the tents, and place the tents with the openings from the malarious quarter. The situation is sometimes under no control; if

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[1] W. C. E. Napier.

it is, a dry elevated position remote from marshes, swamps, stagnant water or underwood should be selected. It is best on a gentle declivity with a dry soil, and near a running stream. To ascertain the nature of the soil, dig to some depth to see if moisture is retained. A camp should not be formed on ground recently occupied, nor on a battle-field. Tents should be pitched as far apart as can be permitted. Place the tent on the ground, not in an excavation.[1] * * *

6. Tents should not be placed in an excavation, but, if too cold, a wall of stones or earth should be built, and the tent placed on it. When sleeping out, the men should be taught to use every inequality of the ground as a protection against cold winds; it is astonishing what protection even a slight elevation gives.[2]

7. Avoid encamping or bivouacking in graveyards. Get as far to windward of them as possible. * * * * * * *

A grass country is the best; all brushwood should be avoided. Forests lately cut down are dangerous, particularly in hot or tropical countries. In temperate climates, if the country is well settled, and the people have a robust appearance, it is the best guarantee of the healthiness of the place. There should be good natural drainage. * * * * * * Sites on granite, metamorphic, clay slate, and trap rocks are good. When however these rocks have became disentegrated, they are supposed to be unhealthy, and this rule has certainly proved true regarding Hong Kong and Kowloon. Limestone and magnesian limestone are also healthy when there are not marshes, which are common in these formations; water there is good, but hard. Chalk is good when unmixed with clay; water is pleasant and good. When the chalk is so mixed with marl as to become impermeable, it is damp, and likely to prove unhealthy. The permeable sandstones are very healthy.[3]

8. The clay slate rocks precisely resemble the granite and granitoid formations in their effect on health. They have usually much slope; are very impermeable; vegetation is scanty; and nothing is added to air or to drinking water. They are consequently healthy. * * *

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The permeable sandstones are very healthy; both soil and air are dry;

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[1] Hand-Book. [2] Parkes. [3] Wolseley.

the drinking water, is however sometimes impure. If the sand be mixed with much clay, or if clay underlies a shallow sand-rock, the site is sometimes damp. * * The hard millstone grit formations are very healthy, and their conditions resemble those of granite. Gravels of any depth are always healthy, except when they are much below the general surface, and water rises through them. Gravel hillocks are the healthiest of all sites, and the water, which often flows out in springs near the base, being held by underlying clay, is very pure. Sands, are both healthy and unhealthy. The healthy are the pure sands, which contain no organic matter, and are of considerable depth. The air is pure, and so is often the drinking water. * * The unhealthy sands are those which, like the subsoil of the Landes, in South-West France, are composed of siliceous particles (and some iron), held together by a vegetable sediment. It is nearly impermeable to water, but water dissolves gradually the vegetable water, and acquires a brownish-yellow colour, and, if it comes from about six feet in depth, has a marshy odour. It is most unwholesome, and causes intermittents and visceral engorgements.† * * In other cases sand is unhealthy, from underlying clay or laterite near the surface, or being so placed that water rises through its permeable soil from higher levels. Water may then be found within three or four feet of the surface; and in this case the sand is unhealthy, and often malarious. Impurities are retained in it, and effluvia traverse it. Merely digging for water in the wet season will cause the discovery of these conditions. In a third class of cases, the sands are unhealthy because they contain soluble mineral matter. * * * Clay, dense marls, and alluvial soils, generally, are always to be regarded with suspicion. Water neither runs off, nor runs through; the air is moist; marshes are common; the composition of the water varies, but it is often impure with lime and soda soils. In alluvial soils there are often alternations of thin strata of sand, and sandy impermeable clay: much vegetable matter is often mixed with this, and air and water are both impure. *

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Well cultivated soils are often healthy, nor at present is it known that the use of manure in any form has been hurtful. Irrigated lands, and especially rice fields, which give not only a great surface for evaporation, but also send up organic matter into the air, are hurtful.[1]

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† Eaux Publiques, par De Caux.

9. Soil may affect health :—

(1) By its conformation and elevation.

(2) By the vegetation covering it.

(3) By its mechanical structure, which influences absorption ; radiation of heat ; reflection of light ; absorption of water ; movement of water over and through the soil ; passage of air through soil ; formation of dust.

(4) By its chemical structure, which acts especially by altering the composition of the air over the soil, or the water running through it.

In addition, the aspect of a place, and the amount of sunshine and light it receives, are very important. All these points should receive attention in reports on sites. * * *

* * * Among hills, the unhealthy spots are enclosed valleys, punch-bowls, any spot where the air must stagnate ; ravines, or places at the head or entrance of ravines. In the tropics especially, ravines and nullahs are to be avoided, as they are often filled with decaying vegetation, and currents of air frequently traverse them. During the heat of the day, the current of air is up the ravine, at night, down it. As the hills cool more rapidly than the surrounding plains, the latter current is especially dangerous, as the air is at once impure and cold. * * * * * On plains, the most dangerous points are generally at the foot of hills, especially in the tropics, where the water, stored up in the hills, and flowing to the plain, causes an exuberant vegetation at the border of the hills. A plain at the foot of hills may be healthy, if a deep ravine cuts off completely the drainage of the hill behind it. The next most dangerous spots are depressions below the level of the plain, and into which therefore there is drainage. Even gravelly soils may be damp from this cause ; the water rising rapidly through the loose soil, from the pressure of higher levels.[2]

10. Brushwood should be cleared away, but trees left until time is given for consideration. In clearing away brushwood, the ground in

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[1] Parkes. [2] *Ibid.*

the tropics should be disturbed as little as possible; and if it can be done all cleared spots should be soon sown with grass. In erecting buildings, the ground should be excavated as little as possible; in the tropics, especially, hills should never be cut away. The surface should be levelled, holes filled in, and those portions of the surface on which rain can fall from buildings well paved with good side gutters. This is especially necessary in the tropics, where it is of importance to prevent the ground under buildings from becoming damp: but the same principles apply everywhere. In a temporary camp so much cannot be done; but even here it is desirable to trench and drain as much as possible. It not unfrequently happens in war, that a camp intended to stand for two or three days is kept up for two or three weeks, or even months. As soon as it is clear that the occupation is to be at all prolonged, the same plans should be adopted as in permanent stations. The great point is to carry off water rapidly, and it is astonishing what a few well-planned surface drains will do.[1]

SECTION II.

MILITARY BRIDGES.

1. Any description of bridge that can be speedily constructed, and for the materials of which the means of transport can be provided, may be properly termed military. In general, a military bridge consists of supporting bodies, *i.e.*, either pontoons, boats, casks, or floating masses of timber, placed parallel to the banks of the river, at a greater or less distance from one another, in proportion to their strength or buoyancy, and the weight they are required to sustain. These floating bodies, serving the purpose of piers in permanent bridges, are connected by pieces of timber called *balks*, which being covered with planks called *chesses*, form the superstructure or floor of the bridge. The space

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[1] Parkes.

between two supporting bodies, together with that occupied by one of those bodies, is called a *bay*. The weight a bridge may be required to sustain, is the first point to be considered.[1]

2. Military bridges may be classed under four heads:—

(1) Bridges formed of floating objects, such as boats, bateaux, pontoons, casks, rafts (including swing and flying bridges).

(2) Bridges on trestles or piles, and rough timber bridges.

(3) Timber truss bridges.

(4) Suspension bridges of rope, rope-wire, wire; also board suspension bridges.

Weights on bridges. (1) Unarmed men crowded, 110 lbs. per square foot of bridge.—(2) Rank and file with kits in fours, each man 200 lbs., equals 222 lbs., per lineal foot of bridge.—(3) The same crowded, 560 lbs.—(4) Cavalry marching in double files (man and horse 1400 lbs.), each file occupied 12 feet, and the load equals 233 lbs. per lineal foot. (5) Field Artillery, 12-pr. Armstrong gun and limber, 35 cwt., load per lineal foot, 437 lbs.—(6) Siege artillery, 40-pr. gun, carriage, and limber, 79 cwt., load equals 888 lbs, per lineal foot. A frightened drove of cattle brings the heaviest weight possible. Where the bridge is not of a sound and substantial nature, infantry must always be ordered to break step, bands to cease playing. Cavalry to cross by twos and sometimes to dismount and lead their horses. Guns should be dragged over by hand, or by means of tackle. Droves of cattle, be divided into sections.[2]

3. Carts or waggons may often be used, as supporting bodies for a bridge over a canal, or river of small depth. Each pair of wheels and their axle, may have a trestle attached, on which to lay the floor of the bridge. Timber carriages are well adapted for the formation of a bridge, where the depth of water is nearly uniform, and not very great, as for instance, over canals. * * * * Raft bridges are easy of construction, since they consist only in securing together stout pieces of pine, or other light wood, and covering them with planks or boards; but rafts thus made, are not capable of bearing great weights;

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[1] Macaulay.

[2] Hand-Book.

they are not, therefore, fit for the passage of artillery. Small bodies of cavalry may be passed over bridges of this kind; the men dismount and lead their horses in single file, keeping at a moderate distance apart. The buoyancy of a raft may be increased by lashing empty casks to its side or under it. With the aid of a small pump, a cask may be easily introduced under a raft, by first filling it with water, and then, having secured it in its berth, pumping out the water through the bung-hole. Cask bridges are made by lashing together a sufficient number of casks to form a pier for the bridge, which is then divided into bays. The number of casks requisite for each pier will depend on their size, and the buoyancy required to be given to the bridge. Casks may generally be procured in the neighbouring farm-houses or villages, the floors and roofs of which will furnish materials for your bridges, if no better can be procured. Trestle bridges can only be used for the passage of rivers of small depth, and the bed of which is not very uneven. * * An additional leg being added to the end placed down the stream, to enable it the better to resist the current.[1]

4. A simple plan for crossing streams has been adopted lately in America. The waterproof sheets or blankets carried by the soldiers, are made use of to form boats. The frames are made of 3 or 3½ inch round sticks. The blankets are about 7 feet by 5 feet in size. * * * * The trail flying bridge, consists of a raft plying between wharves on opposite shores. The raft runs at an angle of about 55° with the current, and is attached by a bridle to a pulley, rolling along a cable stretched across the stream. When about arriving at the opposite shore, the raft should gradually be brought parallel to the head of the wharf, to avoid oblique impact and shock. A swing-flying bridge usually consists of a boat or raft between two wharves on opposite sides of a stream, by means of a cable, with one end secured to a fixed point, generally an anchor in the bed of the river; the other end being attached to the floating body, oscillating under the oblique action of the current on its sides. The cable should not be more than twice the breadth of the river, nor less than one-and-a-half times its width.[2]

5. 'Flying' bridges * * are generally used on rivers, where a more permanent structure would be objectionable, either on

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[1] Macaulay. [2] Hand-Book.

account of its impeding the navigation, or from certain military points of view.[1]

6. By means of suspension-bridges, deep ravines, and chasms, and rocky swift-rushing rivers, may be crossed. Materials can generally be obtained from on board vessels, or from the stores carried with a siege train, to construct them. * * * * A bridge may be formed readily by stretching floor cables of 3 inches in diameter, by means of capstans across a river, erecting two trestles about 14 feet high on the banks (taking care to have the tops of the trestles at the same level), and passing two suspension cables over the trestles. The ends of the floor and suspension cables must be firmly secured, either to ring-bolts or pickets, or beams let into the ground. Suspension tackles are fastened to the suspension cables at intervals, and are hooked into rings at the ends of cross-pieces of timber, passing under the floor cables. Trees and other objects are often found in suitable positions, for making fast the ends of the ropes or cables to.[2]

7. In order to enable a general to make his arrangements for throwing temporary bridges over a river, its breadth must be ascertained, as well as all islands which might favour their establishment. The best place for constructing a bridge will generally be at a re-entering bend of the river, because it can then, by a judicious arrangement of the artillery, be better protected by a cross-fire in front of the bridge. The bank on the side from which the bridge is thrown, should also command the other bank. The construction of the bridge will be rendered easier if there is an affluent near the spot, where boats and other "matériel" may be collected unknown to the enemy. All these points should be considered, and mentioned in the reconnaissance. The roads leading to the points where it is proposed to construct a bridge, should also be examined and reported on. If the river be navigable, it is very important to ascertain the number of boats which can be collected for the purpose of forming bridges or crossing troops over. Their average size and description should be stated, as well as the number of men they would hold. Great care should be taken to secure all the boats; or, if this cannot be done, a reconnoitring officer may sometimes have an opportunity of preventing the enemy from using them by sinking them.

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[1] Jervis. [2] Hand-Book.

The nature of the country on each bank, the military positions and camping grounds to be found, the towns and villages on or near the river, are all points of considerable importance which should not be overlooked in the reconnaissance of rivers, particularly villages, which often form a prominent feature in the passage of rivers. It should be ascertained weather the river is frozen over in winter sufficiently to allow of troops marching over it. Ice three inches thick will bear troops and light pieces, and if six inches thick will support heavy artillery, and all the burdens which the passage of troops may bring upon it. If ice is covered with straw, and water be poured upon it, which then freezes, the bearing power may be further increased.[1]

8. The Russian general Lewis crossed the Dwina, in 1812, over a bridge of this description, near Linden, ten leagues from Riga. Rivers frozen over three inches deep, will bear infantry, cavalry, and light field guns drawn over by hand.[2]

9. To transport heavy guns across ice, place planks between the wheels, scotch up with coins and drag by hand.[3]

10. To destroy bridges of masonry or brickwork, where the piers are strong and thick, and time is of little value, run in a small gallery about five feet from the arch stone, and when at the centre of the width of the bridge make a return to the arch and lodge the powder against it. The common and quickest mode of mining is by sinking down from the road above, and lodging the powder in a mass on the centre of its width. Five or six hours labour, and fifty to one hundred pounds of powder, will probably suffice for this. When there is no time to sink a shaft deep, 250 lbs. or 400 lbs. of powder placed in a cross-shaped opening over the crown of the arch and covered with stone and earth, will answer. If there is no time to make any kind of hole, suspend a large charge under the arch. Do not use more than one mine, unless obliged by some cause. The Austrians lost the battle of Magenta, by not completely destroying the bridge over the Ticino. They had placed the powder charges in several small mines, some of which failed to explode at the critical moment. It is always difficult to ensure simultaneous explosion.[4]

11. Attempts to destroy a bridge, when it has once been established, may be made by means of barges and trees with their roots uncut.

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[1] W. C. E. Napier. [2] Jervis. [3] Hand-Book. [4] *Ibid.*

Explosive machines formed of vessels laden with shells, grenades, &c., so fitted as to explode by concussion. Ice when used as a bridge, is easily destroyed by cannon. At Austerlitz, large bodies of Russians endeavouring to escape over some frozen marshy lakes, were totally destroyed by a battery being turned upon the ice and breaking it before them. Stone bridges can be destroyed by hollowing through the platform of a bridge, in the shape of a cross, as far as the exterior curve of one or more arches; this hollow is filled with powder, and the reaction of the elastic fluid against the partitions is sufficient to destroy them. A barrel of powder, or an auget, supported by small vertical beams under the arch of a small bridge, will blow it up. This method is especially practicable for streams of little depth, running between high banks. Wooden bridges are burnt, either by surrounding their piles with dipped bavin lashed with wire, or by heaping these fagots on the platform. They may be blown up, by suspending a barrel of powder with ropes under one of the bays; the piles may also be destroyed, by placing a barrel of powder attached to them at the water level. The French, in their retreat to Bayonne, made use of a very ingenious method to delay the pursuit of the British. When the English reached the bridge of St. Jean de Luz, which was constructed of timber, the first bay, or interval, between the bank and nearest upright framework supporting the superstructure, was so far consumed as to render new beams and planks necessary, before any passage could be effected. The repair was commenced immediately, and completed in about an hour-and-a-half, when the second bay was discovered to be on fire, and so far damaged as to require renewal. The officer employed while his men were repairing this also, carefully examined the under side of the remaining bays; but, as the beams supporting the roadway were planked underneath as well as above, nothing appeared that gave the least indication of these being injured. The repair of the second bay was completed about ten o'clock, and a considerable portion of infantry passed. In about an hour-and-a-half afterwards, the third bay was discovered to be on fire, and so far damaged, as to be considered unsafe. While the repair of the third bay was in progress, the remaining bay was partly unplanked, to see if the cause of this combination, at periods varying from one-and-a-half to two hours, could be discovered. Between the top and bottom planks, three boxes were found, about two feet long and nine inches wide and deep, containing a fuel already so far decomposed by ignition that its nature could not be ascertained. The enemy's intention, in which they completely succeeded, was, it would appear, to destroy the different bearings at intervals, that the English might not find out the extent of the injury all at once, so as to prepare the necessary means of repair for the whole; and doubtless they gained, by so doing, several hours more time to get out of the way.[1]

12. Drift timber and floating objects, boats and vessels filled with combustibles and torpedoes, to be exploded by clockwork, electricity, or chemical action are employed. To destroy wooden bridges, cover the principal parts with pitch or some combustible matter, and set fire to them. For destroying the wooden truss bridges in Virginia, the Federal cavalry carried small torpedoes in their saddle bags, consisting of a short bolt of $\frac{7}{8}$ inches iron, 8 inches long with head and nut; the head 2 inches in diameter and about 1 inch thick; a washer of about the same size must be placed under the nut at the other end, with a fuze-hole in it. Between the washer and head is a tin cylinder 1$\frac{3}{4}$ inches in diameter, which is filled with powder, and when the washer and nut are put on forms a case. In using this torpedo, a hole is bored in the timber (in the main braces in Howe's Virginia truss bridges), the torpedo, head downwards, is driven in by a stone or billet of wood, and the fuze fired with a cigar lighter. To destroy a suspension bridge; destroy or blow up the points of support to which the cables are affixed.[2]

13. When a retreat is made down the bank of a river, wooden houses may be thrown into the stream, also fire-ships and mills,—a means the Austrians used in 1796 against Jourdan's army, near Neuwied on the Rhine, where they nearly compromised the army of the Sambre and the Meuse. The Archduke Charles did the same thing at Essling in 1809. He broke the bridge over the Danube, and brought Napoleon to the brink of ruin. It is difficult to secure a bridge against attacks of this character, unless there is time for placing a stockade above it. Boats may be anchored, provided with ropes and grappling-hooks to catch floating bodies and with means for extinguishing fire-boats.[3]

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[1] Jervis. [2] Hand-Book. [3] Jomini, Chap. V., Art. 38.

Section III.

FORDS.

1. Fords are of great importance, on many occasions, during a war: it is often by means of them that surprises are effected, that the destruction of bridges becomes without effect, that a defeated army may be hotly pursued, or an escape made from a victorious enemy.[1]

2. Nearly all rivers are fordable at some points. It is very important to discover these fords, and to obtain an accurate knowledge of their direction across the stream, their depth, the nature of their bottom, and the rapidity of the current. There are many ways of ascertaining the fords of a river:—

(1) By questioning the natives who live on its banks. They generally are acquainted with all the fords, though they will not always impart their knowledge to an enemy.

(2) By walking along the bank and observing the traces of roads or paths leading into the river. The marks of wheels entering a river are a good indication of a ford, particularly if these wheel-marks reappear on the opposite bank. Houses or villages on opposite sides of the river frequently indicate a ford which connects them. It was thus that Sir A. Wellesley guessed the existence of a ford, the discovery of which led to the battle of Assaye.

(3) By dropping down the river in a boat with a sounding-line or pole of the given depth of the ford sought for; whenever this pole or line comes in contact with the bed of the river a ford may be looked for.

(4) By certain known indications, such as a swifter or broken current in some parts of the river, particularly near bends and loops.

No means of discovering the existence of fords should be neglected, and when discovered their direction and the nature of their bottom should be carefully examined.[2]

3. Limits, 3 feet for infantry, 4 feet for cavalry, 2 feet 4 inches for artillery: 3 feet 4 inches for the latter, when the limber boxes are

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[1] Jervis.

[2] W. C. E. Napier.

taken out. To render the passage of a ford safe and easy, run a rope or cable across from bank to bank. * * * Rivers which are not fordable perpendicularly across, are often passable in a slanting direction between two bends.[1]

4. Previous to a force passing a ford of any size, rows of stakes should be driven in, showing its exact limit. If the current is strong, ropes should be stretched from pole to pole, and mounted men posted along its upper limit to break the force of the stream. Torches or lanterns should be used at night to mark the line of crossing. When the stream is strong the men should pass in the broadest possible front, locked arm-in-arm; if also deep, each rank should be several paces from the other, for if a column passes in close order, it serves to dam up the stream and so deepen it. When the current is rapid, boats should be kept plying about near the dangerous places, to pick up anyone who may be swept away.[2]

5. A bottom of large stones is bad for cavalry, impracticable for carriages. Gravel is the best bottom. A sandy ford, though good at first, is apt to deepen when many troops pass. It must be ascertained whether the stream be liable to sudden floods, and if so, under what circumstances; and whether it is affected by tides.[3]

SECTION IV.

CONVOYS.

1. There are several sorts of convoys:—convoys of ammunition, provisions, money, material and clothing, wounded, prisoners. Convoys of ammunition are habitually placed at the head of the line of march; next come the provisions, and finally, the effects and clothing. Convoys should avoid towns and villages, and all defiles as far as possible.[4]

2. When a great convoy of artillery is ordered to make a forced march, Decker gives the following example as one which should be followed on such occasions. In 1807, the artillery of the corps d'

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[1] Hand-Book. [2] Wolsely. [3] Hamley, Part VI., Chap. VII. [4] H

commanded by General Lestocq, was ordered to make a forced march from Kœnigsberg to Tilsit, a distance of eighteen German miles. The convoy consisted of 99 guns, which, with their waggons, &c., formed a column of about 250 carriages. The bridge equipment had taken another road as far as Labian, but was obliged to join the convoy at that point, on account of a bridge which was there. The convoy was divided into eight sections, which started one after another; the first left Kœnigsberg at two o'clock in the afternoon, made a march of two German miles, then formed on the side of the road, where it halted two hours to feed the horses. During this time, the other sections continued their route, and placed themselves successively along the side of the road at from 2000 to 3000 paces distance from one another. As soon as the eighth section had passed the first, the latter resumed its march, and about ten o'clock at night, reached a bivouac, five German miles from Kœnigsberg; each section resuming its march as the first passed it. Through these measures, the second day at twelve o'clock, that is to say, in seventy hours, the whole convoy had crossed the Niemen, and bivouacked in the meadows of Baublen.[1]

3. In 1805, the Austrians afforded an example directly contrary to the preceding one. Their grand park of artillery had to retreat from Ulm to Egra, in Bohemia. Numbering upwards of 300 carriages, it was formed in one long straggling column, and marched day and night, constantly harassed by the enemy, never halting, and neither forage nor rations being served out. The consequence was, that the horses fell from sheer exhaustion, the carriages had to be abandoned one after another, and, after a march of eight days, only 17 carriages, out of 300, entered Egra.*

4. It is prudent to have a number of empty waggons to receive the loads of those that break down, and part of their horses may help the rest. Beasts of burden precede waggons, because the latter break up the roads. Five or six yards interval must be preserved between the divisions for the passage of the troops from right to left. The escort is divided into advanced guard, mainbody, and rear guard. With a considerable convoy, such as 200 carriages, occupying 2400 yards, where it would be impossible for any but a large force to line the whole extent

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* (Traité Elémentaire d'Artillerie, par E. Decker). Jervis.

[1] Jervis.

with troops, the main body might be divided into four parties—one to form a reserve, one for the protection of the centre, one to march at the head, and another at the rear of the column. This reserve is to reinforce any point that may be specially threatened, and should be half of the main body; the detachment to protect the centre one-fourth, and for each extremity only an eighth, for the centre will be the most fatal point of attack, and the detachments on the extremities will be aided by the advanced and rear guards.

* * * * * *

These different bodies do not quit their own places in the convoy to concentrate on a first alarm, because feints will probably precede or accompany the real attack. The convoy, harnessing by successive divisions, to prevent unnecessary fatigue to the men and horses, sets out secretly in early morning; and if its safety be of vital importance, the space over which it is to pass should have been traversed just before by a moveable column.[1]

5. In most cases, the means of transport are furnished by the inhabitants of the country, from whom it is demanded, as those belonging to the army rarely suffice. This system, being a very great tax on the inhabitants, requires a great deal of watchfulness on the part of the escort, as, in the moment of danger, the carters and muleteers cut the traces of the horses and belly bands of their mules, and thus escape amidst the confusion. The commanding officer, should, therefore, be on his guard against their questions, and let them know they will be fired at if they attempt to escape.[2]

6. An important point to be observed, in the formation of a convoy, is, always to make use of the mode of transport adapted to the nature of the country. Napoleon felt the evil of deviating from this principle in the Russian Campaign, 1812, where he depended for his supplies upon a multitude of waggons, each destined to carry several thousand pounds weight, over sandy plains where carts, laden with a few hundred weight, were drawn with difficulty.* Carts, well horsed and not heavily laden and upon which the infantry can be placed, may be made to go at a trot; the same pace may also be obtained from beasts of burden: but, in general one cannot depend upon [illegible]

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* Ségur, Expédition de Russie.

[1] Hamley, Part VI., Chap.

than three miles an hour; and in hilly, rugged roads, two miles, and sometimes less. The excessive slowness of oxen should prevent as much as possible their being made use of; but, in the mountainous districts of Italy and France, and in parts of Spain and Portugal, it is often impossible to obtain any other means of transport. In most of the Spanish provinces, in the Pyrenees, and Piedmont, mules are made use of more as beasts of burden, than of draught. Donkeys are also used for the same purpose. These animals can go through the most difficult paths (which is often necessary, when escaping from the enemy), but much attention is required to prevent disorder, as the animals, when frightened, crowd together, which crushes and often destroys their burden. In Ceylon, where almost all the traffic of the interior is carried on by means of small oxen, the drovers make fast the burdens to the horns of these animals, so that, if frightened and attempting to throw off their burdens, (as animals generally do on such occasions), they are immediately stopped by the weight on the ground, which keeps their heads down.[1]

7. If a convoy consists of gunpowder or other inflammable matters, it should not be taken through any village or town, but a circuitous route should be preferred; in some cases, however, when this cannot be avoided, care should be taken to have all the fires put out along the line of march, more especially those of blacksmiths' shops. When convoys are to be parked for the night, every precaution should be taken against a surprise. The method of parking depends on the nature of the convoy: an open space, having a good communication with the high road, should be preferred; but if the country consists of ploughed fields, where the wheels would sink into the earth, and much time and trouble would be necessary to get them on the high road again, it would be better to park upon the latter. When there is plenty of space, and a sufficient number of waggons, they can be formed into a circle, the shafts of each waggon being directed towards the centre, the cattle unyoked, and tied to strong pickets in front of each waggon. If there are not enough waggons to form a circle, a square can be formed, placing the waggons axle-tree to axle-tree, with their shafts turned inwards; this formation is perhaps the best, when

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[1] Jervis.

there are a few pieces of artillery with the escort. In some countries, the carts, being excessively small, might perhaps not afford much protection by placing them axle-tree to axle-tree; a safer system would be, to lash the shaft of each cart to the body of the next in front, thereby forming one connected line: this is especially applicable to two-wheel carts. * * * * * * * * * *

* * * * * *

Whatever formation is adopted, it should be remembered that all powder waggons must be separated from the remainder, and most strictly watched.[1]

8. When attacked in force, especially by cavalry, the convoy forms square, the horses facing inwards, and the angles and faces are defended by infantry. * * * * If the enemy can be checked, the convoy must continue its march, and the attack should be met at some distance from the waggons; if unable to defend the ground, the escort should retreat on woods, farms, or other obstacles, and place the park so that the obstacle and the convoy may flank each other, while the troops extend between them.

* * * * * *

When an escort of prisoners is attacked, it should remain near them, because the assailants will not risk killing their own people by firing. To prevent escape the prisoners should be ordered to lie down, and not rise without orders on pain of being shot.[2]

9. Cavalry alone would not succeed in an attack—it should be supported by infantry guns; and the force should be divided into three bodies, the principal to attack the escort, the second to assail the convoy, the third in reserve, besides any further detachments that may be required to make feints.

* * * * * *

In case of a convoy succeeding in forming a park, the cavalry attacks the escort, and the guns fire on the park, which will always be set on fire or opened by a few shells; but if the assailants have no artillery, and fail to penetrate, they must draw off and await their opportunity when the convoy is again in motion—moving ahead, meanwhile, and breaking up the roads. Cavalry alone may be employed with advantage against convoys of baggage, animals, or of prisoners.[3]

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[1] Jervis.

[2] Hamley, Part VI., Chap VII.

[3] *Ibid.*

10. 'After the battle of Gettysburg, on the 2nd and 3rd July, and subsequent retreat of Lee's army to the Rapidan, General Kilpatrick,' having been despatched by Meade on the 4th to observe the roads towards South Mountain, and getting wind of the movement of the Confederate trains through Fairfield, he ascended the hills some miles further to the southward; and, taking a cross route at night, came before daylight into the vicinity of Ewell's convoy, capturing some hundreds of waggons. One of the Federal regiments, indeed, gained for a time the head of the long column, and attempted to turn the whole off their line of march on Hagerstown. But the confusion among the intercepted was scarcely greater than that of the pursuers, many of whom gave themselves up to plunder; and in the end, Stuart's cavalry, who were guarding the train, recovered most of the prisoners and all but one hundred of the waggons, some of which had been burnt. On the three following days there were skirmishes in the vicinity of Hagerstown and of Williamsport, at which latter place the trains were to reach the river. But although Kilpatrick was now joined by a brigade of Buford's division, the irregular tactics of their troopers failed to make any impression on the covering line held by Stuart, who in the chief of these affairs (that of the 6th), gave the Federals a serious check.[1]

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[1] Campaigns in Virginia, &c.

INDEX.

Abattis, destruction of, 504
Abercrombie, expedition to Egypt, 189
„ „ Holland, 184
Accidental, points of manœuvre, 34
Advanced corps at Trautenadu, 486
„ „ Skalitz, 486
„ „ of Zieten, 487
Advanced guard, distance of, 485
„ „ of army, 483
„ „ of column, 392
Advanced pickets, position for, 494
„ „ relief of, 500
Advanced posts, 343, 489
„ „ attack of, 382
„ „ defence of, 383
„ „ at Blenheim, 381
„ „ at Ordal, 492
„ „ at Waterloo, 381
„ „ distance of, 491
„ „ generals for, 489
„ „ vigilance of, 489
Affghanistan, errors of British in, 75
Albuera, position at, 533
„ retreat from, 421
Alexander the Great, enterprises of, 7
Alexandria, isolation of, 114
„ an objective point, 37
Algiers, attack on, 158
Alma, two guns at, 301
„ order of battle at, 379
„ position at, 350, 532
Alps, passage of, 435
Ammunition expended at Königgrätz, 221
„ rounds carried, 221
Angular base, 29, 33
Archduke Charles, combined operations of, 5
„ „ reputation as a strategist, 15
„ „ defence of Danube valley, 118
„ „ in 1796, 5
„ „ study of, 12
Armies, command of, 8
„ defensive, 97
„ education of, 7
„ on same frontier, 46
„ junction near enemy, 44
„ landing of, 181
„ landing in Egypt, 189
„ landing in Holland, 184
„ organizing, 8
Arsenals, destruction of, 163
Art, military, 1
Art of war, distinct parts, 1
„ its progress, 3
„ under Frederick the Great, 4
„ learning under Napoleon, 8
Artillery at Alma, 301
„ Bautzen, 295
„ Eylau, 287
„ Friedland, 299
„ Lodi, 293
„ Lutzen, 287
„ Marengo, 287
„ Talavera, 298
„ Wagram, 300
„ against columns, 293
„ against lines, 293
„ breaching with, 305
„ camp at Boulogne, 300
„ cavalry with, 227
„ change of front, 300
„ classification of, 279
„ conveyance of gunners, 284
„ cover, artificial, 534
„ cover, natural, 288
„ covering passage of a river, 452, 454
„ „ „ of Danube, 459
„ „ „ of Douro, 463
„ en masse, 296
„ equipment of, 284
„ field, 281
„ fire of, 290

Artillery fire, area of, 300
,, ,, concentration of, 298
,, ,, description of, 292
,, ,, direction of, 291
,, ,, enfilade & oblique, 295
,, ,, quickness of, 285
,, ,, reverse, 295
,, ,, vertical, 164
,, garrison, 306
,, general of, 277
,, horse, established, 280
,, in defence of posts, 511
,, in defence of a river, 471
,, in defiles, 443
,, independence of, 226
,, in echelon, 291
,, in line of battle, 355
,, in mountains, 438
,, in retreats, 415
,, movement of, 285
,, mortars, 294
,, numbers at Austerlitz, 279
,, numbers at Solferino, 279
,, numbers with an army, 279
,, opposed by skirmishers, 238
,, penetration of, 305, 307
,, position of, 288
,, progress of, 296
,, protection of infantry, 226
,, proximity to riflemen, 291
,, reserve, 286
,, siege, 302
,, transport across ice, 546
,, under Senarmont, 277
,, unit of, 280
Attack, combined, 162
,, decisive point of, 230
,, French and Prussian, 225
,, naval, 152
,, of gateways, 505
,, of posts, 383, 502
,, of village, 382, 505
,, when covered by a river, 453
Austerlitz, battle of, 76
,, cavalry charges at, 261
,, cavalry echelons at, 261
,, reconnaissance after, 481

Badajoz, siege of, 128
Balkan, passage of, 446
Balkan, range of, 103
Barricades, materials for, 511
Base of operations, 26
,, distance from, 28
,, double, 32
,, extent of, 28
,, parallel, 29
,, perpendicular, 27, 29
,, re-entrant angle, 29, 33
,, supply for, 26
,, sea coast for, 32
Battalion, formations of, 325
,, unit of infantry, 311
Batteries, breaching, 305
,, casemated, 167
,, coast, 149
,, earth and sand, 169
,, elevation of, 151
,, en barbette, 165
,, field and position, 150
,, floating, 148
,, Moncrieff, 166
,, of Alabama river, 152
,, of Fort Sumpter, 158
,, of Sebastopol, 152
,, of Vicksburg, 156
,, on precipice, 152
,, turret, 166
Battle, critical moments of, 229
,, hour of attack in, 239
,, offensive and defensive, 239
,, what to avoid, 232
Bautzen, artillery at, 295
,, retreat after, 418
Bayonet, charges with, 314
Benningsen, battalion formation of, 326
Berezina, passage of, 468
Biar, pass of, 450
Blucher, staff of, 20
Bomarsund, attack on, 162
Borodino, battle of, 108
,, reserve at, 233
Boulogne, camp of, 223
Bridges, at Banos, 414
,, Bayonne, 547
,, Charleroi, 487
,, Lobau, 458
,, Manilla, 414
,, Ordal, 492
,, Palencia, 414

Bridges, barricading of, 492
„ destruction of, 546, 548
„ military, 542
„ places for, 545, 457
„ weights on, 543
Brialmont, system of defence, 109
Buntzelwitz, intrenched camp, 136
Bueonos Ayres, defence at, 514
Burgos, siege of, 127
Busaco, retreat from, 411

Cæsar, enterprises of, 7
Camps, of instruction, 7
„ utilising, 6
Capital, fortifying, 123
Casemated batteries, 167
Caubul, British in, 75
Cavalry, after decisive action, 429
„ against infantry, 329
„ against squares, 253
„ at Borodino, 334
„ Chateau, 260
„ Gettysburg, 268
„ Gross Aspern, 333
„ Watchau, 256
„ Waterloo, 333
„ Wurzburg, 257
„ charge of, 265
„ charge halted, 267
„ damaging railways, 207
„ echelon formation, 259
„ examination of ground, 247
„ first and second lines, 255
„ flanks of, 255, 258
„ formation for attack, 261
„ form of Austrian attack, 261
„ full lines, 259
„ functions of, 249
„ general of, 247
„ independence of, 254
„ in line of battle, 353
„ in pursuits, 429
„ in retreats, 415
„ irregular, 269
„ light, 268
„ mounted rifles, 272
„ oblique line of, 257
„ on infantry flanks, 253
„ proportion of, 245
„ reserves of, 245, 256
Cavalry, supports of, 257
„ Turkish, 244
„ under Cromwell, 244
„ unit of, 249
„ weight on, 249
„ with artillery, 246
Changes of front, 378
Charlestown, attack on, 158
Chevaux-de-frise, removal of, 504
Chief of staff, 21
China, expedition to, 191
Chlum, Prussians at, 242
Church, for defence, 506
Circumvallation, lines of, 528
Ciudad Rodrigo, siege of, 132
Civil wars, 2
Coast, armament for, 306
„ assailable points of, 146
„ defence of, 144
„ fortifications for, 147
„ lodgment on, 182
„ of Confederate States, 144
„ railways for, 145
„ reconnaissance of, 482
Columns, advanced guard of, 392
„ and lines, 320
„ at Albuera, 322
„ at Alma, 323
„ at Vimiero, 321
„ formations of, 314
„ formation on the march, 393
Command of armies, 8
„ river bank, 454
„ undivided, 17
Commanding ground, attack of, 231
Communications, acting against, 51
„ aiming at, 58, 73
„ at Salamanca, 101
„ direction of, 54
„ lateral, 52
„ lines without, 52
„ long lines of, 53
„ menacing, 54
„ of British in Sinde, 54
„ French in Spain, 59
Concave order of battle, 369
Concentrating, by railway, 200
„ of Austrians in 1866, 208
„ previous to battle, 77
Condé, campaigns of, 3

Congreve, Sir William, 5
„ rockets, 308
Constantinople, movement on, 446
Convergent lines, 47
Convex order of battle, 366
Convoys, attack of, 554
„ carriage for, 552
„ march of, 550
„ packing of, 553
Corunna, retreat on, 420
Cossacks, as light cavalry, 270
„ attacks by, 271
„ importance of, 270
„ ponies of, 271
„ skirmishing of, 271
Council of war, assembly of, 19
Country, knowledge of, 16
„ examination of, 247
Courtrai, obstacle at, 247
Cover, artificial, 530
„ for artillery, 288, 534
Crimea, expedition to, 192
Crotchet, on a flank, 361

Danube, passage of, 458
Dartmoor, experiments at, 530
Decisive point, of battle field, 230
„ of theatre of war, 34
„ superior numbers on, 231
„ at Borodino, 233
„ at Marengo, 233
„ at Waterloo, 233
Defence, indirect, 98
„ of Denmark, 99
„ England, 124
„ London, 125
„ Portugal, 101
„ Saragossa, 524
„ Spain, 103
„ Tariffa, 526
„ Turkey, 103
„ a river, 469
„ points on a river, 461
„ posts, 383, 506
Defensible posts, 380
Defensive army, 97
„ war, 97
Defensive-offensive, 99
„ combat, 325
Defiles, attack of, 439
„ defence of, 441
„ guns in, 443
„ heights of, 440
„ turning, 442
„ of Balkan, 446
„ of Khyber-pass, 445
„ of Somosierra-pass, 448
Denmark, defence of, 99
Depôts, communications with, 39
„ distances between, 39
„ position of, 40
Detached corps, at Marengo, 79
„ Waterloo, 79
„ in Affghanistan, 75
„ previous to battle, 78
Ditches, filling up, 504
Divergent lines, 47
Double lines, 47
„ passage of a river, 460
Douro, passage of, 462
Dover, intrenched camp at, 145
Drissa, „ 106
Dusseldorf, „ 106

Earthworks at Sebastopol, 129
„ Vicksburg, 156
„ for coast batteries, 169
Echelon, advantages of 238
„ cavalry in, 259
Egypt, expedition to, 189
Electric telegraph, 212
Encampment, site for, 537
England, system for defence, 124
Equitation of cavalry, 266
Essling, battle at, 453
„ bridges at, 458
Eugène, campaigns of, 3
Evolutions, in British army, 4
Expedition to China, 190
„ Crimea, 191
„ Egypt, 189
„ Holland, 184
„ Portugal, 186
Experience, aid of, 15
Exterior lines, 46
Eylau, reserve artillery at, 287

Field artill

Field works, 528
File firing, 220
Fires at outposts, 499
Flank, manœuvres round, 229
„ marches, 398
„ movements by rail, 204
„ positions of Russians, 108
„ turning, 376
Forces, divided, 78, 377
Fords, 549
Fortification of capitals, 116
„ progress of, 111
Forts, of granite, 168
„ isolated, 164
„ land attacks on, 162
„ naval attacks on, 148
„ *versus* ships, 157
Fortresses, as cordons 112
„ as strategical points, 113, 119
„ besieging, 127
„ blocking railroads, 122
„ influence of, 123
„ location of, 119
„ past and present, 111
„ upon mountains, 113
Frederick the Great, intrenched camps, 136
„ „ on rivulets, 378
„ „ passage of rivers, 469
Friedland, artillery at, 299
Frontiers, boundaries of, 73
„ defence of, 111

Garonne, passage of, 465
Gateways, attack of, 505
„ protection of, 512
Generals for advanced posts, 489
„ qualifications of, 13, 15
Georgia, campaign in, 57
Gettysburg, cavalry at, 268
„ order of battle at, 368
„ position at, 349
Grouchy, retreat of, 426
Ground, examination of, 247
Guerilla warfare, 438
Guns at Sebastopol, 162
„ for coast defence, 150
Guns, positions for, 288
„ proportion of, 279
„ scattered, 170

Harbours, protection of, 146
Haynau, ambuscade at, 254
Heights, chain of, 140
Hill ranges, 59
Hohenlinden, battle of, 53
Holland, landing in, 184
Horse artillery, established, 280
Hougoumont, 380
Houses, attack of, 505
„ defence of, 507

Ice, guns across, 546
Independence of artillery, 226
„ cavalry, 254
Infantry, against artillery, 313
„ at Redinha, 332
„ at Solferino, 315
„ British, 312
„ charges of, 314
„ column and line, 320
„ formations of, 314
„ importance of, 310
„ opposed to cavalry, 329
„ squares, 330
„ unit of, 311
Inferior force, disposition of, 485
Initiative, taking the, 235
Inkerman, battle of, 376
Insurrections in towns, 512
Interior lines, 48
Intervals in order of battle, 351
Intrenched camp at Buntzelwitz, 136
„ Dover, 145
„ Drissa, 106
„ Dusseldorf and Kehl, 136
„ Nivelle, 137
„ Torres-Vedras, 136
„ Williamsburg, 142
„ York's Town, 140
Intrenching tools, 531, 534
Intrenchments, temporary, 529
Invasion, Austrian, 93

Invasion, Spanish, 89
Iron-plates, 307
Irregular cavalry, advantages of, 270
  ,, of Cossacks, 270
  ,, of India, 271

Junction of armies, 44
  ,, roads, 35

Kehl, intrenched camp at, 136
Khyber-pass, 415
Königgrätz, direction of attack, 242
  ,, order of battle at, 366
Königsberg, fortress of, 119
Königstein, ,, 119

Lance and sword, 261
  ,, in a mêlée, 262
Lancers in front rank, 262
  ,, time of Cromwell, 263
Landing at Mondego river, 186
  ,, in China, 190
  ,, Crimea, 191
  ,, Egypt, 189
  ,, Holland, 184
  ,, on English coast, 181
Lateral communications, 59
Leipsic, obstacle near, 256
  ,, position at, 347
Leuthen, order of battle at, 362
Light cavalry, 268
  ,, troops, 484
Ligny, order of battle at, 368
  ,, reconnoitring after, 481
  ,, retreat on, 487
Line of battle, artillery in, 355
  ,, ,, cavalry in, 353
  ,, ,, formation of, 350
  ,, ,, reserves in, 357
Lines, concentric, 47
  ,, divergent, 47
  ,, double, 46
  ,, interior, 48
  ,, exterior, 48
  ,, multiple, 49
  ,, parallel, 49
  ,, of circumvallation, 528
Lines of operations, change of, 49
Lines of operations, choice of, 42
  ,, ,, crossing a river, 38
  ,, ,, depôts on, 39
  ,, ,, direction of, 38, 42
  ,, ,, junction of, 45
  ,, ,, length of, 28
  ,, ,, of independent armies, 46
  ,, ,, posts in, 44
  ,, ,, preservation of, 38
Lissa, naval attack on, 159
London, fortifying, 124
  ,, position near, 125
Loopholes in walls, 506
Lutzen, artillery reserve at, 287

Madrid, fall of, 109
Magazines, establishment of, 39
Mantua, siege of, 132
Marches, flank, 398
  ,, length of columns, 392
  ,, of columns, 390
  ,, light division, 386
  ,, French, 387
  ,, Prussians, 386
  ,, ,, on Waterloo, 400
  ,, preceding battles, 386
  ,, ,, Solferino, 395
Marengo, reserve artillery at, 287
  ,, return of Desaix at, 79
Marlborough, attack of intrenchments, 532
  ,, campaigns of, 3
  ,, secrecy of, 22
Menaced on all sides, 75
Mincio, passage of, 470
Mogador, naval attack on, 158
Moncrieff gun carriage, 166
Mondego river, landing at, 186
Moore, advance of, 55
  ,, retreat of, 120
Mountains as barriers, 73
  ,, attack in, 436
  ,, batteries in, 138
  ,, forts in, 131
  ,, offensive in, 434
  ,, rivers in, 434
  ,, tactical difficulties in, 135
  ,, warfare in, 131

Mounted infantry at Petersburg, 273
,, Sailor's Creek, 274
,, employment of, 272
,, in the Pyrenees, 274
,, in North America, 272
,, retreat to Corunna, 274

Napoleon, foresight of, 3
,, first campaign, 9
,, maxim of, 59
,, notes at St. Cloud, 86
,, respecting study, 16
Nations, military spirit of, 8
Naval arsenals, 147
,, powers, steam, 183, 204
Netherlands, defence of, 115
Nivelles, lines at, 137

Objective points, 36
Oblique order, 362
Observation, army of, 131
Obstacles, at Courtrai, 247
,, Leipsic, 247
,, Talavera, 247
,, for outposts, 492
,, on frontiers, 73
,, to attacking force, 235, 529
Obstructions, in channels, 171
,, submarine, 176
Offensive warfare, 82
Olmütz, retreat to, 110
,, Austro-Russians at, 77
Opening fire, 291
Operations, lead in, 80
,, lines of, 38
Ordal, advanced post at, 492
Orders of battle at Alma, 379
,, Austerlitz, 369, 372
,, Gettysburg, 368, 369
,, Inkerman, 376
,, Königgrätz, 366
,, Ligny, 368
,, Salamanca, 373
Order of battle at Vimiero, 370
,, concave, 369
,, convex, 368
,, oblique, 362
,, parallel, 361
,, perpendicular, 365
,, salient, 366
,, turning the flank, 376, 229
Orders, by signal, 216
,, telegraph, 212
,, transmission of, 215
Organizing an army, 2
Out-flanking, 229, 376
Outposts, chain of, 496
,, distance for, 492
,, during the night, 499
,, naval attack on, 164
,, strengthening, 492
,, troops for, 496
,, watching a river, 498

Parallel lines, 49
Paris, defence of, 109
,, fortification of, 117
Pass of Biar, 450
,, Khyber, 445
,, Somosierra, 448
Passage of Alps, 435
,, Balkan, 446
,, Berezina, 468
,, Danube, 458
,, Douro, 462
,, Garonne, 465
,, rivers, 452
Passes of Pyrenees, 103
Peninsula war, study of, 2
Perpendicular base, 29
,, order of battle, 365
Petard, use of, 175
Pickets, position for, 494
,, relief of, 500
,, watching rivers, 498
Pivots of manœuvre, 97
,, at Thorn, 71
,, at Warsaw, 71
Points, decisive, 34
,, of battle-field, 230
,, of support, 97
Population, rising of, 270

Portugal, defence of, 101
Position, advanced posts of, 343, 489
„ attacks of, 230
„ at Alma, 350
„ Gettysburg, 349
„ Königgrätz, 346
„ Leipsic, 347
„ Solferino, 344
„ Waterloo, 340
„ choice of, 337
„ defensive, 345
„ for defence of England, 146
„ for defensible posts, 380
„ strategical and tactical, 338
„ when divided, 377
Posts, advanced, 343, 489
„ attack of, 383, 502
„ defence of, 383, 506
„ defensible, 380
„ in lines of operation, 41
„ provisioning of, 515
„ strengthening of, 492
Preparation of army, 6
Proportion of artillery, 279
„ of cavalry, 245
Pursuits, artillery in, 430
„ cavalry in, 429
„ direction of, 429
Pyrenees, passes through, 103

Quatre-Bras, retreat from, 424

Railways, damages to, 207
„ destruction of, 211
„ flank movements by, 204
„ for coast defence, 145
„ concentration, 201, 208
„ defence, 203
„ gunpowder by, 200
„ influence of, 195
„ intercepted by fortresses, 210
„ transport of troops by, 201
Rapid marches, 386
Rappahannock, passage of, 470
Rear, aiming at, 58, 73
Rear-guard, command of, 415
in retreats, 412
Reconnaissance, after Austerlitz, 481
Reconnaissance, hour for starting, 475
„ importance of, 474
„ of coasts, 482
„ preceding Essling, 480
„ preceding Königgratz, 479
Reconnoitring after an engagement, 481
„ after Ligny, 481
„ by advanced guard, 484
Re-entrant base, 29, 33
Reserves at Antietam, 234
„ Borodino, 233
„ Pultowa, 234
„ Salamanca, 234
„ in a charge, 256
„ in line of battle, 357
„ moment for use, 233
„ of cavalry, 245, 255, 415
Retreat after Bautzen, 418
„ ammunition in, 412
„ artillery in, 415
„ cavalry in, 415
„ covering, 415
„ divergent, 407
„ from Albuera, 421
„ Busaco, 411
„ Königgrätz, 416
„ halts during, 409
„ lateral, 408
„ methods of, 405
„ night marches, 413
„ of French on Toulouse, 419
„ Grouchy, 426
„ Moore, 404
„ Prussians from Ligny, 423
„ „ on Ligny, 487
„ patrols during, 482
„ rear guard during, 412
Richmond, advances on, 85
„ an objective point, 37
Rifled arms, firing of, 220
„ influence of, 217
„ Jomini's opinion, 220
„ tactical changes, 327
Rivers as lines of operation, 73
„ at Leipsic, 347
„ at Königgrätz, 347
„ currents in, 460
„ defence of, 469

Rivers, double passage of, 460
„ fortresses on, 113
„ in mountains, 434
„ outposts watching, 498
„ parallel to advance, 59
„ passage of, 452
„ „ Berezina, 468
„ „ Danube, 458
„ „ Douro, 462
„ „ Garonne, 465
Roads, necessity of, 195
Rockets, introduction of, 307
Rogniat, principles of defence, 116
Rolica, Wellington at, 100

Saint Bernard, passage of, 435
Salamanca, battle of, 373
„ communications at, 101
„ manœuvres preceding, 387
„ squares at, 253
Salient order of battle, 366
San Juan D'Ulloa, naval attack on, 158
Saragossa, defence of, 524
Sebastopol, attack on, 161
„ cliff batteries at, 152
„ Fort Constantine, 153
„ guns used at, 162
„ objects of siege, 128
Seven years' war, 99
Seydlitz, 247
Shelter-trenches, 528
Sherman, aid by railways, 206
„ in Georgia, 57
Ships in motion, 154
„ versus forts, 157
Siege of Badajoz, 128, 132
„ Burgos, 127
„ Ciudad Rodrigo, 132
„ Mantua, 132
„ Sebastopol, 128
„ objects of, 127
„ success of, 131
Signalling, 216
Sinde, communications in, 54
Site for camps, 539
Skirmishers against artillery, 238
„ preceding columns, 231
Smolensko, retirement from, 405
Soignies, forest of, 346
Solferino, hill at, 290, 344
Solferino, march previous to, 395
Somosierra pass, 448
Soult, pursuit of Moore, 420
„ retreat from Albuera, 421
„ retreat on Toulouse, 419
Space occupied by troops, 476
Spain, defence of, 103
„ transport in, 40
Spies, information through, 477
Squares, 330
„ at Fuentes Onoro, 331
„ Gross-Aspern, 333
„ Langensalza, 253
„ Salamanca, 253
„ the Turones, 331
„ Waterloo, 252, 333
St. Cyr, as to study, 8
Staff, chief of, 21
States, frontiers of, 73
Steam vessels, influence of, 204
Strategic front, change of, 70
„ „ double, 71
„ „ position and lines, 73
Strategical points and railways, 197, 210
„ „ selection of, 69
„ „ Ulm and Ingolstadt, 118
„ „ when fortified, 34
Strategical positions, conditions of, 69
„ power, 10
Strategy, 1, 23
„ Napoleon's genius for, 24
„ principles of, up to 1815, 51
Streets, attack of, 512
„ defence of, 511
„ fighting in, 512, 516
Suburbs, defence of, 512
Superior force, assailing with, 80, 232, 377
„ „ of Jackson, 81
Supplies, depôts for, 39
Sword, cuts, 263
„ in a mêlée, 261

Tactical errors at Waterloo, 241, 346
„ „ Antietam, 234
„ positions, 69
„ talent, 233
Tactics at Austerlitz, 224

Tactics definition of, 222
- „ in mountains, 435
- „ maxims in, 232
- „ progress of, 4
- „ Prussian and French, 225

Talavera, battle of, 100
- „ concentrated fire at, 298
- „ obstacle at, 247

Tangiers, naval attack on, 158
Telegraph, electric, 212
- „ field, 214
- „ use of, 45

Tents, place for, 539
Têtes-de-ponts, 471
Theatre of war, 61
Ticino, bridge over, 546
Torpedoes, 176
Tools, intrenching, 531, 534
Torres-Vedras, lines of, 102, 136
Towns, insurrections in, 512
Trenches, provisioning of, 515
- „ shelter, 528

Turenne, as to learning, 9
- „ as to mistakes, 3
- „ surprised by Condé, 529

Turkey, defence of, 103
Turning a flank, 229, 376
- „ position, 75
- „ manœuvres, 227, 231

Turret batteries, 166

Unit of artillery, 280
- „ cavalry, 249
- „ infantry, 311

Valleys, survey of, 432
Vera Cruz, attack on, 164
Vertical fire, 164
Vicksburg, attack on, 156
Videttes, position for, 495
- „ protection of, 492

Vienna, capitulation of, 109
Villages, attack of, 382, 505
Vimiero, battle at, 100
- „ order of battle at, 370

Vittoria, 101
Volley-firing, 220
Volunteers, transport of, 199

Wagram, artillery at, 298
Walls, loopholes in, 506
- „ protection of, 507, 512

Warfare, defensive, 97
- „ offensive, 82

Wars, civil, 2
- „ importance of, 19
- „ inspiration in, 10
- „ national, 2
- „ preparation for, 6

Waterloo, movements at, 241
- „ state of ground, 240

Wavre, retreat from, 423
Wellington, as to squares, 253
- „ initiatory movements of, 100
- „ observance of rules, 16
- „ practice of study, 12, 16
- „ unravelling designs, 75

Williamsburg, intrenched lines at, 142

York Town, intrenched lines at, 140

Zieten, retirement on Ligny, 487
Zone of operations, 64

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